Psychological Research and Rehabilitation

LLOYD H. LOFQUIST, EDITOR

Table of Contents

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CHAPTER I

Introduction

LLOYD H. LOFQUIST

THIS volume is a summary of the 1960 Miami Conference on Research in the Psychological Aspects of Rehabilitation. The conference participants were research-visible psychologists, whose major interests were in the subareas of psychology, *not* in rehabilitation.

The major chapters in this summary were written by the participants. Happily this obviated any need on the part of the editor to make second-order interpretations of partial notes on what he thought the participants had discussed. Chapters II through VI were written by participating work-group chairmen, and were reviewed, reacted to, and approved by all of the participants in the particular group.

To facilitate reading the thinking reported in the chapters written by the participants, this introductory chapter will describe the origin of the conference idea, the planning and purposes of the conference, and the particular ways in which the conference was structured for the participants. It is important that the reader have this initial orientation to understand the focus and the extent of the work done by the participating psychologists.

Development of the Conference Idea

In 1958, the American Psychological Association, with financial support from the Office of Vocational Rehabilitation, United States Department of Health, Education, and Welfare, sponsored the Princeton Institute on the Roles of Psychology and Psychologists in Rehabilitation. The proceedings of that Institute (Wright, 1959) indicate that broad problems and general issues confronting psychologists and other professional workers in the field of rehabilitation were discussed. Issues arising in the area of research were felt to be of primary significance, but were discussed only in a general way. Furthermore, when participants in the Princeton conference sought to identify unique contributions of psychology to rehabilitation, there was general agreement only on psychology's ability to contribute in the areas of research design and methodology. It became

1

clear that a second conference was needed to attempt to identify some of the specific research contributions psychology might make to rehabilitation.

In addition to its major role in the Federal-State rehabilitation program and its cooperative training program with universities and colleges in the training of various rehabilitation specialists, the Office of Vocational Rehabilitation also operates a substantial research and demonstration grant program. Research proposals come to the Office of Vocational Rehabilitation in increasing numbers each year. The overall character of these research-fund applications leaves something to be desired in terms of such matters as ingenuity and research design. Some of the applicants are psychologists; many of the research problem areas should be of interest to psychologists.

The research potential of rehabilitation for psychologists and the interest of the Office of Vocational Rehabilitation in supporting well-designed research by psychologists needed somehow to be communicated to the membership of the American Psychological Association. A conference of research psychologists, during which the application of psychological research methods to rehabilitation problems might be explored, was seen as a possible mediating device.

With these developments in mind, the American Psychological Association requested financial support from the Office of Vocational Rehabilitation to sponsor a Conference on Research in the Psychological Aspects of Rehabilitation. The general plan was to invite a relatively small work group of psychologists, expert in various subareas of psychology, to consider research and rehabilitation.

A conference planning committee was appointed with the following membership:[1]

> Emory L. Cowen, University of Rochester
> John G. Darley, American Psychological Association Representative
> George W. England, University of Minnesota
> Erasmus L. Hoch, American Psychological Association Representative (Administrative Officer)
> Harold H. Kelley, University of Minnesota
> Lloyd H. Lofquist, University of Minnesota (Chairman)
> Lee Meyerson, University of Houston

[1] The institutional affiliations shown are those appropriate for the conference dates.

Howard L. Roy, Office of Vocational Rehabilitation Representative
Morton Seidenfeld, Office of Vocational Rehabilitation Representative
Franklin C. Shontz, University of Kansas

In discussing the intended impact of the conference and its subsequent publication, the planning committee considered various alternatives, singly and in combination. Among other things, it was felt that such a conference might motivate psychologists to direct more of their research energies toward the problems of rehabilitation, provide for the general information of all grant applicants the precepts of good research planning, and furnish convenient guidelines for use by the Advisory Council of the Office of Vocational Rehabilitation.

It was anticipated that when expert psychologists brought their knowledge and experience to bear on the problems of rehabilitation, new research areas would be identified, feasible research approaches would be suggested, and present research knowledge from the subspecialties of psychology might be translated to the field of vocational rehabilitation.

If these goals were realized, the conference and its published proceedings might convey an accurate image of rehabilitation and its manifold possibilities for significant research on psychological problems—and might motivate psychologists involved in rehabilitation, as well as psychologists generally, to submit proposals for consideration by the Office of Vocational Rehabilitation.

In addition to contributing research ideas to rehabilitation and motivating psychologists to direct more of their research energies to rehabilitation, it was hoped that the conference proceedings would exemplify the precepts of good research planning and furnish tentative guidelines for use in the consideration of research applications.

It was hoped that the conference would focus not only on those problems of rehabilitation having relevance for psychology but as much, if not more, on those aspects of psychological knowledge and theory which can be translated into the language of rehabilitation or brought to bear on its problems.

Structure of the Conference

The most difficult tasks for the preconference planning committee were centered around which special areas of psychology to sample, and which psychologists to invite to represent these special areas. Obviously

this conference could focus on only a limited number of special areas. The desire to hold a work-conference, and budgetary limitations, led the planning committee to select five special areas of psychology and to invite a small number of expert psychologists to participate in each of the five work groups.

Members of the planning committee agreed to chair work groups in areas of their own special interest and training. Inasmuch as the participants were selected as research-visible expert psychologists, who in most cases were unlikely to have had interests or experience in rehabilitation, the committee invited four additional psychologists working in rehabilitation to serve as resource persons to each of the work groups. In one of the work groups the chairman also served as the resource person.

The following list of topics and participants emerged from the preconference planning and formed the basic structure of the conference:

Work Group I: Cognition—Sensory and Perceptual Organization

Chairman:	FRANKLIN C. SHONTZ, University of Kansas
Participants:	TAMARA DEMBO, Clark University
	MARTIN SCHEERER, University of Kansas
	SEYMOUR WAPNER, Clark University
Psychologist in Rehabilitation:	CECIL H. PATTERSON, University of Illinois

Work Group II: Career Development

Chairman:	GEORGE W. ENGLAND, University of Minnesota
Participants:	LEE J. CRONBACH, University of Illinois
	DONALD G. PATERSON,[2] University of Minnesota
	LEONA E. TYLER, University of Oregon
Psychologist in Rehabilitation:	ABRAHAM JACOBS, Columbia University

Work Group III: Learning

Chairman:	LEE MEYERSON, University of Houston
Participants:	JOHN L. MICHAEL, Arizona State University
	O. HOBART MOWRER, University of Illinois
	CHARLES E. OSGOOD, University of Illinois
	ARTHUR W. STAATS, Arizona State University

[2] Professor Donald G. Paterson died on October 4, 1961, after a short illness.

Work Group IV: Personality Theory and Motivation

Chairman:	EMORY L. COWEN, University of Rochester
Participants:	RICHARD S. LAZARUS, University of California
	ABRAHAM S. LUCHINS, University of Miami
	MORTON WIENER, Clark University
Psychologist in Rehabilitation:	O. BRUCE THOMASON, University of Florida

Work Group V: Social Psychology

Chairman:	HAROLD H. KELLEY, University of Minnesota
Participants:	ALBERT H. HASTORF, Dartmouth College
	EDWARD E. JONES, Duke University
	JOHN W. THIBAUT, University of North Carolina
Psychologist in Rehabilitation:	WILLIAM M. USDANE, San Francisco State College

It was decided that the operation of the conference would be given only minimal structure. Maximum freedom was to be given to the small work groups. This was the case at the conference, with maximum attention given to freedom of the work groups and meeting their needs with respect to meeting rooms and equipment for keeping a record of their deliberations. Parenthetically, it is interesting to note that the plan of a work conference with little or no formal structure produced a good deal of anxiety in committee members, in outside professional persons who wished to speak at the conference on behalf of their agencies, and in the participants themselves who were motivated to work hard, and did, but were not quite sure they had done enough. The reader will have to judge the merits of holding such a deliberately unstructured work meeting from the contents of this conference report.

The group met in plenary session only on the morning of the first day. The conference Chairman introduced the participants and briefly described the lack of conference structure. Only two brief talks were included in this meeting of the total group. Dr. John Darley, representing the American Psychological Association, and Dr. Morton Seidenfeld, representing the Office of Vocational Rehabilitation, expressed the hopes of the sponsoring organizations that a work meeting of psychologists would produce stimulating research approaches which could be communicated to other psychologists and to rehabilitation personnel. The work groups had, then, virtually all of the time period—November 9 through Novem-

ber 12—to consider psychological research and rehabilitation in any manner they wished to choose.

Prior to the conference, work-group chairmen were encouraged to explore the ways in which their participants might wish to begin their deliberations. In some cases, chairmen prepared preconference working papers. Where portions of the working papers are relevant, they have been integrated by the Chairmen into the final reports printed in this book.

The Chairman of the conference was charged with preparing preconference information on the nature of rehabilitation and its research needs. These materials are reproduced in the paragraphs that follow to provide background information for the reader whose interests have not included the broad area of rehabilitation. They may also help the reader to develop a feeling for the kinds of preconference information that were available to the participants. Each participant also received a copy of the report of the 1958 Princeton meetings on the role of psychology in rehabilitation.

Definitions of Rehabilitation

Rehabilitation has been defined in many different ways by its special subgroups of workers. A definition that is both inclusive and meaningful is difficult to find. A brief review of the more common definitions, however, will describe the goals and procedures of rehabilitation.

Rehabilitation is most often defined as a process seeking to achieve "restoration of the handicapped to the fullest physical, mental, social, vocational, and economic usefulness of which they are capable (National Council on Rehabilitation, 1944)." Rehabilitation may be seen as a creative process aiming to define, develop, and utilize the assets of the handicapped individual (Hamilton, 1950). It may be seen as a concentration of individual and community resources to bring about the restoration of competitive ability, independence for the individual, economic self-sufficiency, contribution to the national economy, and/or the social and work adjustment of the handicapped.

Some definitions stress a realization by the handicapped individual of a life most useful socially and satisfying personally. Rehabilitation has been defined as making a handicapped person aware of his potential and then providing the means of attaining that potential. Writers in the field also point out that while the emphasis in most definitions is on restoration of the handicapped to some productive and satisfying status, habilitation, or the achievement of productive and independent living for the first time, is also an important part of rehabilitation.

The term "handicapped" includes physical, mental, and emotional problems. The individual is handicapped with reference to personal, social, and/or work adjustment. The current trend is in the direction of provision of rehabilitation services for the achievement of the broader goal of improved independent living for any handicapped individual, even when direct contribution to the labor force or the national economy is not likely.

Rehabilitation is felt to be maximally effective when medical skills, psychological skills, social-work skills, and education and employment skills are integrated in a team effort in terms of the desires, needs, and unique total handicap of the impaired person.

When one tries to examine the philosophy of rehabilitation developed by individual professional persons at work in the field, it becomes obvious that different weights are given by different workers to some of the underlying principles of a philosophy of rehabilitation—principles that relate to such matters as individual dignity, more workers in the labor force, decreased relief expenditures, increased tax yield, and the feeling that it is good to help others. Professional affiliations, of course, may further complicate the matter when we consider desires to understand behavior, to heal all men, and to study the family and the community.

Rehabilitation is a complex business. It poses problems related to interpersonal and interprofessional relationships, to groups, to motivation, to individual assessment, to interviewing techniques, to acceptance of disability, to career planning, to the effects of disability, to learning, and to work adjustment—to mention only some of the problem areas. The theory and practice of psychology, medicine, and social work all contribute in large measure to the integrated effort of teams of professionals engaged in rehabilitation. Many of the problems of rehabilitation are particularly relevant for psychology and should be amenable to the research approaches of psychologists.

Whatever definition of rehabilitation is favored by a particular person or group, perhaps all would agree that: (*a*) rehabilitation is concerned with practical problems in the lives of individuals; (*b*) it is concerned with past, present, and future individual behavior and with assisting an individual to find an optimal balance of these which will permit living as well as possible within the handicaps imposed by disability and within the potential development described by the individual's particular balance sheet of plus and minus ability, aptitude, interest, and personality factors; and (*c*) it involves active interprofessional participation in plan-

ning with and for the individual. Most workers would also agree that re habilitation could profit from more attention to the measurement of ways of changing attitudes of the public and employers (and of professional workers and rehabilitation clients) toward the handicapped as a group and toward specific disability classes.

The Growth of the Public Rehabilitation Program

A recent Office of Vocational Rehabilitation article (Office of Voca tional Rehabilitation, 1960) describing the first 40 years of the Federal- State rehabilitation program includes information which indicates that the rehabilitation effort is a substantial and growing one. This kind of infor mation would also emphasize the growing need for application of research knowledge, for use of demonstrated research techniques, and for the devising of new research approaches to meet the growing demands for service and training in rehabilitation.

The record of the Federal-State program[3] shows 523 rehabilitations to gainful employment and satisfying life in the first year of operation (fis cal year 1921). In 1961, the number of rehabilitations was 92,501, with estimates of 100,000 and 110,400 for 1962 and 1963, respectively.

In the present Federal-State rehabilitation program, the Federal gov ernment's share of the cost averages 62%, the States' share 38%. In 1921 the Federal share was only $93,000 compared to $191,000 for the States. For 1962 the estimated Federal expenditures total $62.95 million with State funds of $39.4 million.

In 1962 Federal OVR expenditures for research and demonstration total approximately $10 million. Research and demonstration grants had supported some 540 special projects which hold promise of contribution to the solution of rehabilitation problems. In all, OVR has spent about $37 million thus far on research and demonstration projects.

The OVR also has supported expansion programs, community proj ects, State extension and improvement projects, and State agency training grants.

In addition, for eight years OVR has operated a program of training grants to colleges and universities interested in establishing or expanding programs to train professional workers in the fields contributing to re habilitation. In 1962, training grants to colleges and universities num bered over 300. In eight years, university training programs in rehabili tation counseling have increased from 4, which were producing about 12

[3] Figures on this page have been brought up to date from the time the conference was held.

graduates a year, to about 34 in which approximately 750 graduate students are enrolled. Traineeships for residency study in physical medicine and rehabilitation increased from 4 in 1955 to about 200 in 1962.

The Public Health Service and OVR had, as of April 30, 1962, approved support of rehabilitation facilities in 219 projects in hospitals and rehabilitation centers in the total amount of $136,569,918. The Federal contribution to this amount was over $44 million.

The Federal-State program, the research, demonstration, and training programs continue to expand. Bills have been introduced in both houses of Congress which would extend existing services to two additional groups of people: (a) persons in an institution who may be rehabilitated to the extent that they could dispense with institutional care and (b) homebound disabled persons who could dispense with the home attendant.

In addition to the large OVR programs in rehabilitation, the Veterans Administration in its Department of Veterans Benefits operates a national program of medical treatment and counseling. The VA in its Department of Medicine and Surgery carries out a national program of medical, psychological, and social service in 173 hospitals.

Numerous additional private agencies and institutions carry out active programs of rehabilitation service, research, and training.

Rehabilitation Settings

Rehabilitation clients may be seen in a number of settings such as the following:

State Rehabilitation Agency District Office
State Agency for the Blind
Rehabilitation Center
Workshop for the Mentally Retarded
State or Federal Hospital
Institute for the Crippled and Disabled
Institute of Physical Medicine and Rehabilitation
Private Agency

Major rehabilitation centers are concentrated in urban areas and often are affiliated with large universities. Increasing attention is being given to expanding and coordinating rural facilities for serving the handicapped.

Rehabilitation Clients

Rehabilitation clients represent the whole range of physical, mental, and emotional disabilities, and the entire age range. Effort has been con-

centrated, however, on persons in the labor-force age range. The trend is toward increasing attention to the needs of the older worker and to working with persons over 65. The median age at acceptance of rehabilitants went from 26 in 1945 to 36 in 1958.

Rehabilitation Specialists

In any rehabilitation effort, a team of professionals will be found active, whether the team is formalized and located in one institution, or informally organized as representatives of the contributing professions in a community.

The professional rehabilitation workers active in the total effort with handicapped persons will ordinarily include the following:

Physician and/or medical specialist	Social worker and/or psychiatric social worker
Physiatrist	
Psychiatrist	Audiologist
Clinical psychologist	Speech therapist
Counseling psychologist or vocational rehabilitation counselor	Physical therapist
	Occupational therapist

Many other individuals may also be active. As examples we might list the following:

Nurse	Prosthetic appliance specialist
Corrective therapist	Prevocational training specialist
Placement specialist	Manual arts therapist
Employment service representative	Chaplains, volunteers, and hospital aides
Educational therapist	

Many individuals may be active. The main planning, service, and research efforts, however, are carried by professionals from the broad areas of: medicine and surgery; physical medicine specialties; psychology; social work.

Rehabilitation Research Needs

To indicate that rehabilitation workers and rehabilitation psychologists feel the need for research in problem areas relevant to psychology, some evidence may be helpful. (The following summaries of felt research needs were *not,* however, intended to limit the activities of the participants in any way.)

The report of the 1958 Princeton conference on psychology and rehabilitation (Wright, 1959) lists (in Appendix IV) 316 research proposals gathered from rehabilitation psychologists in a preinstitute survey. These research proposals are distributed in the following fashion:

RESEARCH AREAS NEEDING INVESTIGATION

Category	Incidence
Psychodynamic and psychosocial	62
Problems in special disability areas	56
Psychotherapeutic techniques	29
Psychological evaluation, tests, and techniques	28
Motivation and resistance	16
Professional qualifications, competencies, training	16
Rehabilitation team and team relationships	16
Rehabilitation and the family	15
Rehabilitation: General issues	15
Education and learning	12
Attitudes toward handicapped	11
Vocational training and placement	9
Professional terminology and communication	8
Vocational evaluation	7
Occupations and job analysis	5
General disability	4
Community needs	4
Economic	1
Recruitment	1
Restrospective evaluation of rehabilitation	1
Total	316

In a regional meeting of 15 state rehabilitation directors with psychologists from a state university, the following problems were mentioned in small group discussions:

Counseling techniques
Criterion problem—What is rehabilitation counseling trying to accomplish?
Continuous staff evaluation
Counselor turnover
Client follow-up
Client satisfaction
Case-management standards
Continuing standards for estimating case loads
Differences in techniques—experienced and inexperienced counselors
Definition of closure
Definition of handicap
Effects of fringe benefits and OASI
Employer satisfaction with handicapped employees
Follow-up on rehabilitation personnel selection procedures
Handicap stereotypes

How successful are we in rehabilitation counseling over a long period of time?
Interdependence of older-worker and disability problems
Prevocational training
Prevocational training of early age groups
Problems of follow-up studies
Quality vs. quantity in rehabilitation
Recording by counselors
Research on work-load standards
Social stereotypes
Specific research on problem of supervisors, good supervision
Timing of rehabilitation
Trainee selection
Social perception of counselors
Value of team approach
What is an optimum case load?

The examples shown above indicate simply that the need for research is felt both by rehabilitation personnel and by psychologists working in rehabilitation settings.

The Work-Group Reports

The work-group reports are presented in the next five chapters. The transition from one chapter to the next is abrupt. Each group report represents a different interest area in psychology. The only underlying thread is the psychologist's approach to research in rehabilitation.

The Chairman of the work group took primary responsibility in each case for writing the chapter. Work-group participants were active in revising preliminary drafts of the report for their group. Multiple authorship is indicated for Chapter VI inasmuch as it represents the integration, by the group Chairman, of papers written originally by the individual group members while at the conference.

The Editor has made no content changes in the chapter reports, except for the elimination of duplicating statements of introduction describing the general nature and structure of the total conference.

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Cognitive Processes, Cognitive Theories, and Rehabilitation

FRANKLIN C. SHONTZ[1]

THIS chapter summarizes and integrates the proceedings of the work group on cognition-perception. The content is not organized according to the chronological sequence of the group's deliberations. Instead, it constitutes a presentation and analysis of two basic themes which recurred consistently throughout the committee's detailed discussions.

The first of these themes stressed the need for increased, prolonged contact between the laboratory research psychologist and the psychologist in rehabilitation. The basic problems considered in relation to this theme had to do with (*a*) the evaluation of specific research proposals and projects in terms of their contribution to both psychological science and rehabilitation practice, and (*b*) the proposal of means for increasing the likelihood that research ideas of maximum theoretical and practical utility may be forthcoming from both general psychologists and from psychologists directly engaged in providing rehabilitation services. For purposes of this report, the essential nature of this theme may be summarized by calling it "The Problem of Intraprofessional Communication."

The second theme was more directly related to specific research and theoretical issues in the area of cognition and was of interest to the members of the committee, not only because of the intrinsic relevance of these ideas to the group's professional concerns, but also because the subject matter provided a basis for concretizing and exemplifying the conclusions of the group with respect to the problem of intraprofessional communication. Obviously, in the brief time that was available, it was impossible to do more than take a very small sample of research in the broad field of cognition. The concepts and projects selected for consideration were those of interest to individual members of the committee. It should

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[1] Franklin C. Shontz, Chairman, Tamara Dembo, C. H. Patterson, Martin Scheerer, and Seymour Wapner were members of the work group on cognition-perception. The Chairman had the responsibility for writing this chapter, which is a product of the efforts of all of the work-group members.

be noted that no member felt he had sufficient time to present his thinking in all its important details. Consequently, the material presented in this summary is intended to be only paradigmatic and representative; it does not constitute a full exposition of the virtually limitless scientific possibilities in this area.

The Problem of Intraprofessional Communication

Especially pertinent to an analysis of the problems of intraprofessional communication is a consideration of the roles adopted by psychologists in the pursuit of their professional activities. The committee distinguished three orientations with regard to the psychological problems and issues which bear on the rehabilitation process and in turn on the problems of intraprofessional communication. The first of these orientations is that of the psychologist as *rehabilitation practitioner*. The second is that of the psychologist as *rehabilitation research worker*. The third is that of the psychologist as *theoretician-experimentalist*.

One member of the committee felt these distinctions to be wholly artificial, in that the interests of the pyschologist in rehabilitation are not, or should not be, essentially different from the interests of the psychologist in the laboratory, the classroom, or anywhere else. The distinctions were maintained by the committee, however, on the grounds that they were not intended to serve the purpose of classifying professional persons, but were intended only to point up real or potential differences in professional functions. It was implicitly recognized that certain individual psychologists combine the functions of practitioner, rehabilitation research worker, and theoretician-experimentalist into one career; but it was also recognized that many individuals prefer to identify their professional activities primarily with one or another of these responsibilities, to the relative exclusion of the rest.

The psychologist as rehabilitation practitioner. It seemed evident that the function of the psychologist as rehabilitation practitioner is to deal with the practical problems that arise in assisting a patient to function most optimally despite the presence of his disability. The psychologist as practitioner has an obligation to perform this function in such a way as to take maximum advantage of advances in psychological theory and knowledge. However, it was recognized by the committee that the practitioner's immediate concern is not with theory alone but with useful practical conclusions based upon theoretical knowledge. What the practitioner

needs, first and foremost, are principles to guide him in dealing with psychological problems as they occur in life. He must look to the research worker for statements of such principles, and he must rely upon his own best judgment when these principles are not otherwise forthcoming. Relevant knowledge is often lacking, or, if available, it often provides an inadequate base from which practical recommendations may be derived.

In performing his function, the psychologist as practitioner does not work alone. Members of other professions, medicine, physical therapy, occupational therapy, speech pathology, etc., also deal with the patient's psychological problems; and it is a part of the psychologist's duty to make the benefits of his training and knowledge available to other professional groups. This aspect of his functioning, however, is an interprofessional one and was not relevant to the concerns of this work group.

The psychologist as rehabilitation research worker. When functioning in the capacity of research worker in rehabilitation, the psychologist is primarily oriented toward the design and conduct of systematic investigations which are directed toward either (*a*) providing applicable techniques and procedural recommendations to the psychologist as practitioner or (*b*) attacking, more or less head-on, the "life problems" of patients themselves, as those problems occur in their natural settings. The psychologist as rehabilitation research worker is also interested in theory, but his primary concern centers around problems, the solution of which should be useful to the person in need of rehabilitation. Working on problems in everyday settings, the rehabilitation research psychologist frequently finds himself in areas where satisfactory theories are not yet available. Under these circumstances, his task is to develop new concepts which in time will have to be integrated within a general psychological theory. At the same time it is the clear responsibility of the rehabilitation research psychologist to be aware of the current status of general psychological theories and to be sensitive to their potential for the organization of research which will further the solution of practical rehabilitation problems. The rehabilitation research psychologist, in this way, is the link between the practitioner and the "pure theoretician."

The psychologist as theoretician-experimentalist. In contrast to those who identify with the above orientation, the psychologist "in the laboratory" often functions at quite a distance from the real and urgently felt needs of the person requiring rehabilitation. When a psychologist identi-

fies himself primarily with the theoretical-experimental orientation, he prefers to work in content areas where existing theoretical ideas are to be experimentally validated through the use of the most highly sophisticated and refined techniques which can be devised. He prefers to work exclusively with the hypothetico-deductive method, and he evaluates his work primarily in terms of its contribution to knowledge and theory, as such. While the psychologist as rehabilitation research worker most frequently lets life problems lead him to develop appropriate theoretical concepts, the psychologist as theoretician-experimentalist usually lets theoretical questions and principles dictate research problems and strategy.

The committee felt that the psychologist as theoretician-experimentalist frequently fails to conduct his research with a conscious view to its potential usefulness in dealing with problems in everyday life. The group felt quite strongly that even the most "purely theoretical" study has important practical implications and that greater intraprofessional communication can accrue from a recognition by the theoretician-experimentalist of the need to transmit and communicate his findings to others who may wish to utilize them in a more pragmatic way and who may require some spelling out of the possible significance of specific results and conclusions for more practically oriented applications.

The problem of values in intraprofessional communication. The discussion of the committee did not focus upon the problems faced by the psychologist as rehabilitation practitioner. Attention was directed primarily to consideration of the needs for and the values of improved understanding between those who identify with the theoretical-experimental orientation and those who are primarily concerned with the rehabilitation research interests of psychology.

Early in the discussions, it was made abundantly clear that the distinction between these two orientations was not intended to be simply a distinction between "basic" and "applied" research interests. Nor was the recognition of the existence of important differences between the two kinds of scientific functions intended to imply that either is in any way more "valuable," more "essential," or more "valid" than the other. It was stressed that research workers of both persuasions agree upon the value of theory and upon the need for an integration of research findings with existing general concepts in the total field.

Value orientation in laboratory and rehabilitation studies. The importance of value judgments occupied the interests of the committee for a

large percentage of a full day's discussion. During the course of this discussion it was observed that research itself is a kind of formalized cognitive process, i.e., a way of getting to know the world in the context of a diversity of value orientations.

Insofar as the research of the psychologist as theoretical-experimentalist is conducted in a kind of isolated ivory-tower sort of way, it was felt that this form of investigative effort tends to remain relatively free from entanglement in any specific value orientation. Research of this type is conducted entirely within the *general* value orientation of science for its own sake, and phenomena are viewed from the standpoint of the "object-observer." Little, if any, regard is given to the standpoints of the directly involved parties as they function in their everyday life. It was felt that an increased recognition of the obligation of the theoretical-experimental psychologist to become aware of and to communicate to others the immediate and possible future implications of his research efforts would greatly facilitate intraprofessional communication.

Within the general orientation of rehabilitation research it is possible to distinguish a number of specific orientations and a variety of standpoints. The general orientation of rehabilitation research is man's welfare. Delineation of more specific value-orientations requires the specification of (*a*) the object of the value orientation and (*b*) the standpoint taken by the researcher. Objects of value orientation can be "the good" of a person needing rehabilitation, or "the good" of the majority of the patients in an institution, etc.

Though the rehabilitation research orientation always implies a welfare orientation, it is unfortunately not always true that what is of benefit to one is of benefit to all the objects of orientation. For instance, a course of action which might be considered good for the person in rehabilitation might not be considered good for the person's family as a whole. However, the investigator has no obligation to resolve this conflict: his "job" is to state his object of value orientation and what or who would benefit from it. He can take any ethical value-orientation, shift from one object to another, so long as he is aware of his shift and makes it explicitly.

A further specification is needed with regard to the standpoint which the researcher takes. One and the same investigator can take different standpoints. Thus he can take the standpoint of a well-wishing stranger (his own standpoint), or the standpoint of the person needing rehabilitation (to look "through the eyes of this other person"), or the standpoint of the family (to see things as they see them).

The question can be asked: Can an investigator actually adopt a stand-point other than his own? It seems that this is possible only by thoroughly understanding the other person's concerns, his ways of viewing things, strivings, opinions, beliefs, etc. Most important is that the investigator adopt the evaluation of the other person as to what is "important," "valuable," and what is "improvement."

We are led to the conclusion that in every investigation the research worker should indicate (a) his value-orientation and (b) whose stand-point he takes. The failure to do so frequently leads to unclearness in the presentation of findings in discussions among theoretical-experimental psychologists, research rehabilitation psychologists, and rehabilitation practitioners.

The problem of values in research assessment. It was agreed that one general criterion for the evaluation of research is the degree to which the research contributes to a broader framework of integrated knowledge. Beyond this, however, the group concluded that it is impossible to state a set of universal criteria by which the adequacy of specific research proposals can be evaluated, except on a purely technical basis. Assuming a minimum level of technical competence, then, the problem of appraisal of specific research projects is actually one of making value judgments and not one of making decisions on the basis of any universally applicable and objectifiable set of selection criteria. The only other rules of research evaluation in the area of rehabilitation which the group could formulate were: (a) that every research design should incorporate some explicit recognition of the *general* value orientation guiding the project and (b) that, at some point, the implications for at least one *specific* rehabilitation value-orientation be indicated. It was agreed that research which failed to meet the first of these conditions would not be likely to make a significant contribution within any general value framework. By the same token, research which failed to meet the second of these conditions would probably confuse issues.

Recommendations Concerning Communication between Theoretical-Experimental and Rehabilitation Research Psychologists

The discussion among group members stressed the importance of communication between psychologists working within the two major orientations. Obviously, the 1960 Miami conference itself provided an important structure for this kind of communication. It was therefore recom-

mended by the committee that conferences of this nature be considered to be an essential and continuing aspect of the future activities of both the *American Psychological Association* and the *Office of Vocational Rehabilitation.*

A second recommendation was that the Office of Vocational Rehabilitation or some similar agency make available to students, faculty, and other professional personnel, financial support for fellowships of flexible duration. For the student or faculty, such fellowships might be awarded for the purpose of visiting and working at one or more active rehabilitation centers. For professional persons, in everyday contact with patients, such a fellowship might make possible a visit to some active theoretical-experimental research program at a university. The importance of flexibility of fellowship duration was emphasized, because it is frequently impossible for the busy professional person to absent himself from his duties for more than a few days or weeks at a time; and a fixed-period arrangement would not be conducive to the kind of time-allotment flexibility that would be required under these circumstances.

All members of the group felt the need for greater acquaintance with the existing and forthcoming literature in the field of rehabilitation and in the field of laboratory psychology. It was pointed out that several abstracting services exist within the field of rehabilitation, among them *Rehabilitation Literature* and *Excerpta Medica.* It was also pointed out that Division 22 of the American Psychological Association regularly publishes a *Bulletin,* and that the Office of Vocational Rehabilitation has recently established the journal, *Rehabilitation Record.* It was felt by the group, however, that none of these publications solves the problem of bringing the results of laboratory research with their implications for rehabilitation directly to the attention of the rehabiliation worker. Also, problems perceived by the rehabilitation worker, as well as results of rehabilitation research work, are not brought to the attention of the psychologist as theoretician-experimentalist by these devices.

The group recognized that, in the final analysis, this problem is one of education for research and practice. The need for students in rehabilitation counseling to be made aware of the importance of basic psychological research during the course of their training was emphasized, and it was recognized that recent OVR efforts in the direction of providing training programs in the psychological aspects of disability for the graduate student in the field of psychology constitute an important step toward the long-range solution of the problem of intercommunication.

SPECIFIC THEORETICAL AND RESEARCH PROBLEMS

The group found it very difficult to bring itself to the point of concentrating upon specific theoretical and research ideas, on the grounds of a preconceived notion that an overinvolvement in theoretical and methodological abstraction might detract from the basic purpose of the conference, namely, to consider the problems of rehabilitation research design and evaluation. Once the discussion of theory got under way, however, the group itself was surprised at the degree to which it was possible, on virtually every specific theoretical point, to find a rehabilitation research referent. The fertilization worked both ways. Those of the group who represented the interests of rehabilitation research found the contribution of the theoretical-experimental psychologist to be increasingly relevant. On the other hand, the theoretical-experimental psychologists discovered that rehabilitation psychology not only provides facilities for testing existing hypotheses but raises new theoretical problems and leads to new understandings and conceptualizations. It was noted that subjects with disabilities often represent the occurrence in nature of conditions which cannot be satisfactorily reproduced in the laboratory; frequently, critical tests of theoretical propositions can be made with the use of disability groups that could not be made in any other way. It was further observed that the existence of physical disability often interferes with natural psychological processes in such a way as to make the character of these processes much more obvious and visible than it is in physically normal individuals.

Because the history of intensive interest in the subject of cognition on the part of certain research workers at Clark University was well known to all the committee participants, the group was particularly taken with the prospect of considering the relevance to rehabilitation of the research program at that institution. This therefore became the first subject of the committee's concern with respect to the discussion of specific theoretical and research efforts in the area of cognition.

Cognition Research Program at Clark University

Dr. Wapner reported on the Clark University organismic-developmental research program. The program was described in terms of the schema presented in Figure 1. This figure is three dimensional in design, each dimension representing one important aspect of program emphasis. The three dimensions may be thought of as interacting in such a way as to yield a total plan of investigative effort which includes, at least potential-

ly, all the possible logical combinations which are derivable from the constituent dimensions.

The vertical axis of Figure 1 reflects a general developmental ordering (from top to bottom in chronological sequence) of four kinds of cognitive *operations*. The horizontal axis reflects a classification of *objects or events* toward which the various cognitive operations may be directed. The depth dimension reflects the several *conditions* under which cognitive functioning may take place. Since each of these axes is represented orthogonally, Figure 1 comprises a kind of truth table of research and theoretical possibilities. The understanding of the nature of these possibilities is premised upon an understanding of the nature of each of the three dimensions; therefore, some space will be devoted to a consideration of the properties of each figural axis.

The four levels of cognitive functioning, i.e., the cognitive operations, may best be described by focusing separately upon the developmental characteristics of each. Since growth takes place not only across operations, from less to more mature levels, but also within operations, it is possible to convey an appreciation of the nature of each operation by presenting examples of some of the developmental processes that go on within it during the course of an organism's growth from infancy to maturity. For
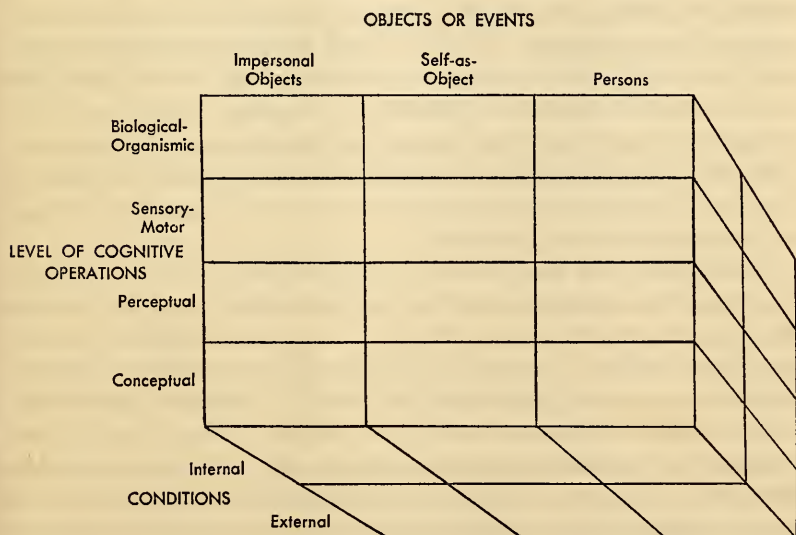

Figure 1. Schematic representation of Clark University research program in cognition.

all levels of cognitive functioning, the changes from infancy to maturity are characterized in terms of a principle which states that development proceeds from less to more differentiation and hierarchic integration.

Within the earliest *biological-organismic* level the general principle applies, for example, to such activities as sleeping-waking. Within the *sensory-motor* level the applicability of the principle of development may be exemplified in terms of processes underlying the range of motor skills, from simple to complex. Within the *perceptual* level, the principle applies to such polarities as self-world (from greater toward less egocentricity; from greater toward less stimulus-boundedness) or to such relations of parts to wholes as assimilation, contrast, contextualization. Within the conceptual level, the principle applies to such relations as those between referents and symbols, between essential and nonessential properties.

The above examples were taken from a report by Wapner (1959a). They are not intended to define exhaustively the processes that take place within the separate cognitive operations during the course of development. They have been presented only to convey a general notion of the characteristics of each type of function. It has already been mentioned that there exists a more general developmental trend in organismic growth, proceeding from the biological-organismic level of functioning through the various other stages to the conceptual level of cognitive functioning. This general trend is, so to speak, superimposed upon the specific trends within each level, and the whole growth process takes place without sharp differentiations between any one stage and the next. Furthermore, the development of higher level cognitive operations does not imply any loss of availability to the person of the lower level operations. The mature individual is conceived to have at his disposal the early as well as the late appearing functions.

Turning now to a consideration of the classes of *objects or events* toward which the cognitive operations may be directed, it may be seen that three basic types have been specified: (*a*) a class of impersonal objects, or of events which deal with temporal changes in properties or relations between properties of impersonal objects; (*b*) a class of self-as-object which includes cognition of one's own body-as-an-object, or of events which involve temporal changes in properties of body-as-object and more generally self-processes, objectively (or reflectively) viewed; and (*c*) a class of person objects, or events which deal with temporal changes in properties of persons or relations between person properties. The term

event is included in the characterization of this schematic dimension of Figure 1 in order to stress the fact that both the spatial and temporal properties of cognized phenomena are granted positions of equal importance in this program. That is, any investigation or investigator may be concerned with either or both of these phenomenal properties in a specific research design or theoretical effort.

No developmental arrangement is imposed upon the classification of cognized phenomena. The order of appearance of the object or event classes along the horizontal dimension of Figure 1 is, for the present at least, entirely arbitrary; but relations between these classes are an important focus of theoretical and research attention.

The *conditions* under which cognition takes place are here very broadly classified, the important thing being the character of the dimension rather than the specific classes of conditions selected. The two kinds of conditions which have been mentioned on Figure 1 are those having to do with (*a*) the internal state of the organism (which might be influenced by altering posture, administering drugs, influencing motivational states, etc.) and (*b*) the external situation (social, physical) in which cognition takes place (by virtue of, perhaps, demands for conformity, by surrounding visual frameworks, etc.).

It is a relatively simple matter to move from a consideration of the separate dimensional aspects of Figure 1 to an analysis of the significance of dimensional interactions. As indicated on the figure itself, the cross-classification of operations, objects or events, and conditions leads to the specification of a number of programatic *cells,* each of which is defined by the characteristics of the three dimensions at their point of mutual intersection. The individual cells, then, represent particular kinds of organism-environment relations which may become the focus of attention in any particular investigative effort. Thus, for instance, in terms of this program, a research worker might concern himself with the influence of social pressure upon the perception of certain subclasses of impersonal objects or events (as in some kinds of research on the autokinetic phenomenon); or, he might investigate the effects of systematically altered internal organismic state upon the learning of certain sensory-motor tasks. Besides these possibilities, and the others which derive directly from the cells themselves, it would also be feasible for the research worker to examine and investigate relations between the various cells. That is, he might direct his efforts toward the discovery and elucidation of principles which are valid with respect to more than one kind of cognitive op-

eration, more than one kind of cognitive object or event, or more than one kind of organismic or external condition. Clearly, then, the research and theoretical potential which lies implicit in this program plan is practically limitless in scope.

In actual practice, a good deal of the early research which was undertaken with respect to the program outlined above was directed toward the consideration of theoretical problems in the diagramatic cell defined by (*a*) the cognitive operation of perception, (*b*) impersonal objects and events, and (*c*) variations in internal organismic conditions. More recent work is developing toward a growing interest in: the more intensive study of the perception of the body-as-object (an aspect of the self-as-object class of phenomena); relations between perceived properties of impersonal objects and body-as-object; and relations between cognitive operations.

Research workers are now undertaking a series of projects designed to investigate the degree to which the principles that have been found to operate in the cognition of impersonal objects and events at the perceptual level also apply to the cognition of one's own body at the same level of functioning. Some of these newer studies will be considered later in this chapter. Before going on to that aspect of the program, however, it is necessary to review some of the more fundamental principles of perception that have been formulated and empirically demonstrated in earlier investigations.

The field-theoretical basis of the program. One critical proposition underlies all the work that has been generated from the schematic model presented in Figure 1. The proposition states that perception, for example, is a reflection of field relationships between and within two sets of primary determinants: (*a*) the proximal stimulus and (*b*) the organismic state or condition of the responding subject (Werner & Wapner, 1952b; Wapner & Werner, 1957). All of the important research which has been completed within this aspect of the program has involved the conceptualization of research procedures in terms of the production of predictable variations in perceptual effects via the manipulation of either proximal stimulus situations or organismic states, or both. For example, the whole series of experiments on the perception of verticality has been a direct product of this basically field-theoretical proposition. In these studies, one kind of variation in the proximal stimulus situation has been induced (Werner & Wapner, 1952a) by presenting the adjustable stimulus

(usually a luminous rod) in many different initial positions (i.e., more or less to the right or left of objective verticality). Variation in organismic state has been induced in several ways: by altering the postural set of the subject through tilting or rotating his body (Wapner, Werner, & Chandler, 1951b; Wapner, Werner, & Morant, 1951; Wapner & Werner, 1952), or by providing intense unilateral muscular, auditory, or emotionally loaded stimulation (Wapner, Werner, & Chandler, 1951a; Wapner, Werner, & Comalli, 1956). Further, relatively permanent changes in organismic state such as those induced by unilateral poliomyelitis paralysis have been studied (Blane, 1957).

Throughout the committee's consideration of the basic field-theoretical assumption of this program plan, the opportunity to exemplify the group's conclusions with respect to certain of the problems of intraprofessional communication presented itself repeatedly. A particularly clear exemplification was found to be afforded by the set of research efforts on the perception of verticality. It was noted that research reports are now appearing in the literature on the subject of the perception of verticality by subjects with hemiplegic conditions (Bruell, Peszczynski, & Albee, 1956; Bruell, Peszczynski, & Volk, 1957; Birch, Proctor, Bortner, & Lowenthal, 1960). Initial studies, using these groups as subjects, were directly inspired by a consideration of the unilateral character of the organismic disturbance which affects hemiplegic persons. Indeed, empirical results have generally tended to confirm the proposition that unilateral organismic involvement of this naturally occurring type is associated with systematic changes in perception of verticality. There is also some indication that future investigation of the subject, in a more immediately practical way, may have important implications for the assessment of the rehabilitation potential of hemiplegic individuals (Bruell & Peszczynski, 1957, 1958); and there is every reason to believe that further studies will lead to important recommendations for the improvement of re-educative procedures for hemiplegic patients, especially as regards ambulation training.

An additional potential contribution of this kind of combined theoretical and rehabilitation research may be illustrated by the conclusions suggested by Birch et al. (1960). These authors tested subjects with hemiplegias not only for the perception of verticality but also for the perception of horizontality. Their results strongly suggested to them that the changes in cognition associated with the hemiplegic condition are inadequately described by noting only the disturbance in performance of one

isolated kind of perceptual task. It appeared to these workers that what was involved in many of their subjects was a partial rotation, *in toto*, of an internal set of spatial coordinates by which the patient's entire physical relationship to his environment was being judged. If Birch and his associates are correct, then it is clear that their work has suggested some new and important ideas for our understanding of the basic principles underlying cognitive activity of this whole general type. Certainly, it has direct implications for our dealings with hemiplegic individuals. Moreover, considering the current theoretical-experimental stress of the Clark University group mentioned above, some interesting new possibilities for research emerge. In the context of the finding that hemiplegics exhibit differences in perception of impersonal objects, we may expect that these individuals also show systematic differences in the perception of body-as-object which relate to those systematic differences obtained for impersonal objects.

Several additional principles of cognitive activity have been elaborated out of the fundamental field-theoretical, sensory-tonic concept which has been reviewed above. Some of the more important of these principles will be outlined in the following sections.

Vicarious and supportive relations. The principles of vicarious and supportive cognitive relations are complementarily related to each other:

1. Vicarious relations are manifested in situations where organismic activity in one sphere effects a *reduction* of organismic activities in other spheres. An example of the operation of the principle of vicariousness is afforded in the research of Goldman (1953), in which physical activity on the part of subjects was shown to reduce the degree of susceptibility of these subjects to the autokinetic effect (see also Krus, Werner, & Wapner, 1953; Krus, Wapner, & Werner, 1958).

2. Supportive relations are manifested in situations where organismic activity in one sphere effects an enhancement of organismic activities in other spheres. Supportiveness may be illustrated by two studies. The first, conducted by Miller (1959), dealt with the role of sensory-motor activity in the retention of verbal meaning. This study utilized the well-known fact that words when repeated for a length of time tend to lose their "meaning." In general, it was found that words repeated in the context of overt action retained their meaning longer than such words without overt action accompaniment. The second study, by Dowling, Werner, and Wapner (1960), demonstrated that perceptual thresholds for visually presented words were lower when accompanied by concordant action.

The committee did not discuss the causal connections which determine selectively the operation of vicarious or supportive processes.

The committee formulated several intriguing possibilities for investigation of the principles of vicarious and supportive relations within the rehabilitation context. For example, it seems quite probable that the conditions of flaccid or of spastic paralysis would induce different kinds of vicarious or supportive effects upon perception (especially with respect to the perception of one's own body). Dr. Scheerer stressed that the principle of vicariousness also seems to operate in some cases of aphasia, as is particularly exemplified by the fact that many aphasic patients can perform one kind of cognitive activity (such as reading aloud) without being capable of performing simultaneously another, normally related, activity (such as retaining what is read). In fact, it might appear in such cases that at least some devices which are commonly used by nonaphasic persons in supportive ways (reading aloud to enhance understanding of difficult passages) do not function in this way for the aphasic but, rather, operate in terms of the principle of vicarious functioning. The relationship of support is taken conscious advantage of in cases where motor activities (such as tracing large visible letters or words) are used in the retraining of individuals with reading losses or disturbances. Very little in the way of theoretically oriented rehabilitation research literature exists on subjects such as these, though certainly much could be done and the directions to be taken are fairly easily pointed out. The clarification of principles such as the ones discussed in these paragraphs yields an immediate benefit, however, in that it places many problems faced by the rehabilitation worker into a more meaningful psychological context. If such principles were in fact applied to rehabilitation research, it is beyond question that even more profitable ideas would be immediately generated.

Equivalence. Another important principle of cognition is the principle of *equivalence*. According to this principle more than one kind of organismic and/or stimulus field situation is capable of producing formally identical effects. Reference has already been made to the studies of perception of verticality. These studies also provide excellent illustrations of one approach to the investigation of equivalence phenomena. It has been found that nonveridical perception of verticality may be produced by several different kinds of induced organismic states in the mature, healthy, adult human being. Changes in this type of perception have been brought about by altering physical posture (through tilting or rotating the body),

by administering unilateral electrical muscular stimulation, unilateral auditory stimulation, or unilateral "danger" stimulation. In every case, the alterations in perceptual accuracy are much the same, irrespective of the type of stimulus employed; that is, the subject tends to distort objective verticality in a direction which counters the laterality of the imposed experimental condition. Variations in stimulus situations may also induce similar effects. For example, Bruell and Peszczynski (1958) found an enhancement of effects in hemiplegic subjects when the Witkin frame was introduced into the experimental situation, and Werner and Wapner (1952a) found that the starting position of the adjustable rod could also be manipulated in such a way as to influence subjects' perception of the vertical. Roughly speaking, therefore, the problem posed by the concept of equivalence is to find the various types, kinds, and degrees of organismic and stimulus situations which will produce identical effects on the outcome of perceptual and other cognitive processes.

It was felt by the committee that the problem of equivalence might have special relevance to understanding and dealing with the behavior of patients with cerebellar lesions. It was pointed out that frequently the *counteractive* mechanisms (which are usually invoked to explain perceptual changes resulting from unilateral stimulation) appear to be particularly disturbed in patients of this type (Goldstein, 1926, 1939; Werner & Wapner, 1952b, 1957). Lacking the automatic ability to restore organismic symmetry through counteractive postural responses, these patients often display difficulty in avoiding environmental obstacles, in maintaining upright posture, and so on. A basic treatment question which then arises is how might organismic or stimulus conditions be altered for these patients in order to minimize this type of loss? That is, what kinds of organismic states or stimulus-field conditions might be introduced to assist the patient to adapt to his altered neurological condition by producing in him counteractive responses equivalent to those which are normally effected by the lost functions? Or, what kind of situation could be provided which would allow the patient to function at maximum effectiveness, without requiring the use of counteractive devices?

Adaptation. The final specific problem which will be covered in this chapter involves the study of processes underlying adaptation. The subject matter of this area has immediately obvious implications for the study and practice of rehabilitation.

Examples were presented of research in which physically normal indi-

viduals were required to adapt to severely altered proximal-stimulus conditions (e.g., Kohler, 1956; Werner & Wapner, 1955); and comment was made regarding the remarkable ability of the human organism to adapt even to severely altered stimulus situations. By way of contrast, it was observed that some special conditions do exist in which adaptation apparently becomes extremely difficult. One such condition is that described by the term *sensory deprivation* (Bexton, Heron, & Scott, 1954; Heron, Doane, & Scott, 1956; Scott, Bexton, & Heron, 1959; Doane, Mahatoo, Heron, & Scott, 1959; Lilly, 1956). It was suggested that there may be two essentially different kinds of adaptation situations: (*a*) those in which the organism adjusts to systematically altered stimulus situations (as he does when he wears distorting lenses, for instance) and (*b*) those in which the stimulus situation is essentially disorganized, chaotic, or indeed, absent altogether (Wapner, 1959b). If this is the case, then different sets of principles must be invoked to explain behavior in the two kinds of situations; yet, very little is known about what these principles might be and how they would operate in the two differing sets of circumstances.

Much of the problem of adjustment to disability is probably related to the basic question of how the organism adapts, or fails to adapt, to altered or unusual stimulus and organismic situations. Research of special importance in this regard is that reported by Petrie, Collins, and Solomon (1958) and by Petrie (1959) on relations between what might be called "cognitive style" on the one hand and ability to withstand pain or sensory deprivation on the other. Some case examples were also presented to the group to illustrate how one cognitive avenue may substitute for another in the adaptation process. It was pointed out, for example, that a young patient with cerebral palsy, who was unable to utilize form in the production of drawings, spontaneously discovered that she could nonetheless produce meaningful self-expressions by identifying important persons in her life with individual colors. The patient would then tell stories involving these people while scrawling with appropriate colors on the paper before her. Cases such as this suggest a process of adaptation-by-substitution in which one avenue of expressive activity cognitively replaces another.

It could be effectively argued that the whole process of rehabilitation is one of facilitating effective adaptation. Consequently it is of considerable importance that the principles by which adaptation takes place in a wide variety of circumstances become as well and as fully known as pos-

sible. There is certainly a broad field here for investigative efforts at all levels of theoretical and practical concern.

Body-cognition. The study of the perception of one's own body as an object is one of the areas of object and event phenomena which has only recently been prominently dealt with in the psychological research literature. Some representative research on body-cognition was considered briefly by the committee.

It has been found that head and arm size-judgments can be significantly influenced in normal, healthy individuals by altering the degree to which the relevant part is "articulated" or structured for the subject by the introduction of supplementary tactile stimulation to that part (Mc-Farland, Wapner, & Werner, 1960; Wapner, 1959c; Wapner, Werner, & Comalli, 1958; Werner, Wapner, & Comalli 1957). It was consistently observed that "articulation" of this type led to a reduction in estimated body-part size.

The principle suggested by these findings was then extended and related to the investigation of the proposition that a significant effect of the drug LSD-25 was a reduction in experienced body-articulation and contour. The testing of subjects under conditions of LSD-25 administration demonstrated the existence of the expected "expansion" of head size-judgments and this result has been interpreted as confirming the original hypothesis (Liebert, Werner, & Wapner, 1958; Wapner & Krus, 1960).

One committee member reported on an independently conceived and executed study which used hemiplegic and nonhemiplegic chronically ill persons as subjects, along with a control group of physically healthy, aged people. This study constituted an investigation of estimated body-part size-judgments of the two chronically ill groups, as compared to the control subjects (Fink, 1959; Fink & Shontz, 1960). The hemiplegic group showed the greatest degree of constriction in judgments in this research; but, interestingly enough, the constriction was not localized to the paralyzed or weakened side. Instead it appeared on all size-estimates, irrespective of the location of the body part involved. The results of this study appear to be consistent with the proposition that chronic physical illness establishes greater body-contour experience and, hence, reduced body-part size-judgments; but it also raises some interesting theoretical questions which may be readily followed up in future research. The research pro-

vides another example of how groups of subjects with disabilities have been used to provide naturally occurring variations in important theoretical factors.

It was reiterated by the committee that much needs yet to be done with regard to the extension of principles, such as the ones discussed in this conference, into the area of body-cognition as such. It was re-emphasized that research on groups of persons with physical disabilities with respect to theoretical problems, as well as with respect to some of the practical recommendations that stem from the knowledge we already have, is almost entirely lacking and needs desperately to be pursued.

Development and regression. All of the work generated within the Clark University program has a strong developmental flavor. That is, every phenomenon and principle has been investigated in terms of its functioning with respect to the cognitive-developmental sequence (e.g., Wapner, Werner, & Comalli, 1960; Comalli, Wapner, & Werner, 1959) as well as in terms of its operation in states of regression. Regressive states are seen by this group as being induced by such naturally occurring conditions as mental disturbance (e.g., schizophrenia), by brain injury, and by such artificially induced conditions as those resulting from the administration of psychotomimetic drugs (Krus & Wapner, 1959; Liebert, Wapner, & Werner, 1957; Wapner & Krus, 1959, 1960). Utilizing the regression hypothesis,[2] the assumption is made that these groups may be developmentally ordered (schizophrenics vs. normals; brain-injured vs. normal; LSD state vs. placebo state), and empirical evidence is sought for formal similarity in the behavior under regressed states with that occurring at less mature stages of ontogenesis (Wapner & Werner, 1957). It is important to note in this regard that the developmental aspects of the study of cognition are also of importance to the rehabilitation worker. Little is known about the degree to which disabilities of various kinds impede, or perhaps even promote, developmental advancement. There is some reason to suppose that certain kinds of disabilities (e.g., brain damage) produce alterations in the cognitive processes (e.g., regression to the concrete attitude) which are formally similar to those processes which appear naturally, early in the course of normal development (Goldstein & Scheerer, 1941). There has been little systematic investigation of all the

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[2] The term "regression" is not used here in the historical psychoanalytic sense but is more equivalent to the concepts of dedifferentiation and primitivization.

implications that can be drawn from an examination of the full range of possible physical disabilities, however, despite the fact that the importance of this type of work is clear.

A final note. The reader is reminded once again that all that can be presented here is a brief review of the overall discussions of this work group. It is not proposed that the above summary presents anything more than the spirit of either the group's deliberations or of the nature of the Clark University perception research program. It is hoped that those who wish to pursue in greater detail any of the matters brought up here will take the time needed to examine at least the references cited at the end of this chapter or that he will contact directly an appropriate member of the committee who can provide him with more complete information.

The research program discussed in the above sections of this chapter will be mentioned frequently in the sections that follow. During the discussion of other matters, research and theoretical ideas were often referred and related back to the schematic plan presented in Figure 1. Some specific points which have not as yet been covered will perhaps be mentioned, at least in passing, in the following sections of this report.

Clark University Project on Motor Activity of Children with Cerebral Palsy

Basic considerations. It was of special interest to the group to hear one of its members, Dr. Tamara Dembo, report on her recent and current work in the field of the analysis of motor behavior. It was noted particularly that the work concerning the development of motor activities in children with cerebral palsy was an example of a research directly dealing with rehabilitation problems. Therefore, no statements as to implications for rehabilitation were required. Furthermore, it was clear that this rehabilitation study deals with principles of cognitive functioning that are of direct interest to laboratory research psychologists.

The fact that the child with cerebral palsy has difficulty initiating and performing certain motor acts, usually thought of as being behaviorally simple, makes the real complexity of these acts stand out more clearly to the careful observer than would ordinarily be the case. Behavior processes, which develop smoothly and run off rapidly in children without disabilities, often develop later (if at all), and much more slowly, in the child with pervasive and severe physical limitations. Careful analysis of these later-appearing and less-rapidly developing functions in children of the

latter type reveals the essential complexity of these presumedly simple behavior processes and calls into question the frequently held, but probably erroneous, presupposition that these behaviors are not deserving of the theoretician's full analytical attentions.

The study of motor activities of cerebral-palsied children began with the assumption that normal cognitive development is highly dependent upon a child's ability and opportunity to manipulate objects in his environment. It had been observed that children with physical disabilities are often particularly passive in this aspect of their functioning and that many cases could be found in which a handicapped child had been afforded little or no opportunity to deal with environmental objects in a physically manipulative way. A program was therefore initiated to provide for an enrichment of the world of objects for some of these children with disabilities by increasing their opportunity to touch and to manipulate interesting things around them. During the course of the environment-enrichment program, efforts were made to observe how object-play was initiated by these children. The goal was to discover the nature of the basic cognitive and motor components of manipulative behavior.

The studies focused entirely upon the analysis of *intentional* acts. Chance or random movements were not made the subject of this analysis, since it was presumed that activities of this latter type required comparatively little cognitive effort on the part of the subjects.

The work which was reported is still in progress. It is therefore not possible to present anything like a complete account of the results and conclusions of this investigation. Some inkling of the scope of the problem may be gained, however, by examining the findings with respect to a single, and apparently most basic and fundamental, behavior, the behavior of *intentional touch*.

Cognitive aspects of intentional touch. It soon became clear to the research workers involved in these studies that even apparently elementary motor activities have highly complex cognitive components. The workers noted that in order to explain the successful accomplishment of the activity of simple touch it was necessary to presuppose an understanding on the part of the subject of at least four essential propositions: (*a*) that *I*, as toucher, am localized here and am separated from the object to be touched; (*b*) that the *object* to be touched is localized there and is separated from me, the toucher; (*c*) that a physical distance exists which separates me, the toucher, from it, the object; and (*d*) that this distance must

be bridged by me in order for the act of touching to be completed. Each of these propositions, in turn, presupposes the existence and understanding in the subject of conceptions such as person, object, distance, and bridging.

In the ordinary act of touching, as it would be carried out by a physically healthy person, who had behind him a normally object-enriched developmental history, such detailed cognitive operations merge into one global act. The act of intentional touch is carried off smoothly and, as it were, without conscious deliberation. When the object-deprived, cerebral-palsied child of three or four years of age has difficulties in performing an activity, however, the determination of the specific nature of the cognitive components underlying these difficulties becomes especially important. The opinion was expressed by the speaker that research of this type questions the assumption that the young organism is in any way "simple" or undifferentiated in its cognitive structure. Rather, it appears that the young child is a very complex cognitive organism whose complexity goes largely unappreciated, if only because of the child's lack of language skills by which knowledge of the world might formally be communicated and expressed.

Comments on theory and method. Some extremely important methodological and theoretical issues may be raised with respect to the work group's consideration of the research on intentional motor acts of cerebral-palsied children. As critical as some of these issues are, and as valuable as it might be to elaborate upon them here, it is not possible within the scope of this report to do more than merely mention some of them in passing. The reader may wish to ponder them on his own.

The first issue has to do with the specific problem of the behavioral identification of intention, or, for that matter, of any internally occurring cognitive process. Obviously, most members of this committee felt that the postulation of the existence of nondirectly observable cognitive processes is perfectly legitimate and does not violate any of the basic principles of science (see Scheerer, 1954). The issue cannot be ignored, however, despite the lack of any one in the work group who would take the side of the opposition.

A second issue had to do with the status of measurement in psychological research. Clearly the part of Dr. Dembo's research which is reported here is not quantitatively oriented. It is concerned less with "how much" than it is with "what" and "how." Its explicit purpose is to deal with

qualitative determinations before quantification is attempted. The lack of measurement in this research immediately brought up a discussion on the question of the importance of measurement.

All members of the committee agreed that measurement, as such, represents an important kind of scientific goal and is not to be denied its position of prominence as a guide to scientific endeavor of any kind. There was considerable disagreement, however, with respect to when measurement should be undertaken. On one side of the issue stood those who felt that the apotheosis of quantification has already anathematized American psychology. On the other side of the issue stood those who felt that measurement is implicit in even the earliest stages of any scientific effort and that the criteria for the measurement of any observed phenomenon should be stated publicly and concurrently with even the most preliminary exposition of one's results. The careful reader might correctly suppose that this issue was not satisfactorily resolved by the group.

A third issue has to do with the nature of the cognitive processes that may take place in a developing organism that does not possess language skills and facilities for expressing and communicating its experience. More will be said on this issue in the next section of this chapter. For the moment, it is sufficient to pose one aspect of the question in the following way: when does one have to assume that behind a psychological occurrence lie cognitive components?

Other Theoretical Issues

It has already been suggested that several additional subjects of importance were discussed by this committee during the course of its deliberations. The exposition of these additional issues is best undertaken in terms of their relation to the material which has already been summarized in this chapter. Consequently, the presentation of them has been reserved for these final sections of the group's report.

Tempo. One of the subjects which was considered briefly was *tempo,* as this term refers to the characteristic rate of cognitive functioning of the individual organism. There has been considerable empirical work on the time-experience aspect of event cognition, and important things are already known about the factors that influence the perception of the duration of events. The problem of personal tempo, however, raises somewhat different, though perhaps related, issues; and very little is known about the way in which organismic tempo influences behavior (cf. Casey,

1958; Wapner & Krus, 1960). Certain perception-oriented research, such as that on critical flicker fusion frequency, appears to come close to the problem, but few, if any, researchers have devoted their full attention to the question of tempo in all its implications. Furthermore, virtually nothing has appeared in the literature which would relate this basic concept of organismic functioning to rehabilitation problems. The committee therefore attempted to foresee some of the potential significance of research in this area, and Drs. Shontz and Scheerer spent some time discussing the relevance of the concept of tempo to an analysis of the behavior of aged and brain-damaged persons in particular.

It is a commonly reported fact that advanced chronological age is associated with increased reaction-times and with decreased speed of effective intellectual performance, at least where unfamiliar tasks are involved. Clinical observations also support the generality of these findings. It seems quite reasonable to suppose, therefore, that advancing age effects a general organismic tempo-reduction in many cases; and it certainly appears that in persons with some types of brain damage, a similar kind of change in natural functioning rate also occurs.

If this proposition were true it could serve several useful purposes in the rehabilitation setting. It would help clarify our understanding of the psychological aspects of aging and brain damage. It would lead directly to the development of methods for sharpening analytical procedures in differential diagnosis. It would yield insights which could lend themselves to application in the improvement of methods of training and patient education. The committee considered how these purposes might be served, and some of the ideas discussed will be reviewed briefly.

Aged patients often behave as though they were suffering certain fairly specific sensory losses or malfunctions. In fact, they often complain directly of such losses. Frequently, these patients are referred by the rehabilitation worker to some appropriate, specialized diagnostician for evaluation. Then to everyone's surprise, the results of the examination are often reported to be essentially negative. That is, the specialist finds that he can identify no sensory loss which cannot be accounted for by the normal aging process or which is severe enough to explain the patient's or the family's complaint. The situation is a common one; it will be recognized by all who deal with the aged and chronically ill.

In these circumstances, the rehabilitation worker usually seeks alternative explanations for the patient's behavior, and it often happens that er-

roneous conclusions are hastily granted unobjectively substantiated valid-
ity in the effort to make sense of contradictory evidence. It is tempting to
propose, for example, that the patient has become senile and that he is
suffering from some intellectual loss or confusion which only appears to
an outsider to be a sensory loss. Or, it might be proposed that the patient
is utilizing an hysterical mechanism and that he is not really, say, deaf at
all, but is, in fact, neurotic. These are two readily available and easily ac-
cepted explanations. It very rarely happens, however, that proper allow-
ance is granted to the possibility that the person has lost neither intel-
lectual nor sensory powers but that he is merely slowed down and cannot
follow the events taking place around him at a tempo which is geared to
the rhythm of younger and more rapidly responding organisms. The ex-
tent to which many supposedly "physical" disabilities of the aged or brain-
damaged will eventually be found to be direct or indirect manifestations
of tempo changes cannot currently be predicted. The distinct possibility
exists, however, that much of the maladjustment observed in these peo-
ple is in reality a function of the externally and internally imposed pres-
sure on the patient to function at a cognitive pace which is unsuited to
his natural capacities.

It was noted that in training the aged and/or brain-damaged person,
a therapist will frequently attempt to induce more rapid or effective learn-
ing by devices that are probably inappropriate. If a patient has difficulty
mastering some aspect of ambulation, for example, the therapist may re-
sort to endless repetitions of instructions or demonstrations, each repeti-
tion presented at virtually the same tempo as the last. Or, the therapist
may increase the intensity of instruction by talking louder or by exag-
gerating physical movements, again with no reduction in the rate of pres-
entation of the material to be learned. The devices of repetition and in-
tensification have become natural, so to speak, in our stimulus-response
oriented psychology, but their use ignores the very real possibility that
merely slowing down the tempo of the presentation (perhaps even to
painfully slow levels) at the outset might produce better results, and
produce them more rapidly, in the long run.

The importance of examining further and more systematically the ap-
plicability of the ideas that can be generated from this brief presentation
should be obvious. Clearly the possibility exists that a person's individual
tempo could be evaluated by suitably designed psychometric methods and
that research could be performed which would demonstrate the effects of

increasing or decreasing cognitive pacing beyond its natural limits. Findings from this type of research would be of value to all who deal in a diagnostic or educative way with people having physical disabilities.

Developmental aspects of brain damage in childhood. The committee's interest in the work on motor activities of children with cerebral palsy led naturally to a consideration of the problems involved in understanding and dealing with the brain-injured child. The committee recognized that a large body of literature exists concerning the effects of brain damage on the cognitive functioning of the mature organism. Literature can also be found describing and analyzing the characteristics of the brain-damaged child. Very little is known, however, about the specifically developmental influences of early-occurring brain damage in the human organism, and the influence of time of life on the effects of brain damage in general. For instance, how does early pathology of the brain affect performance in various areas of functioning, and how does such pathology show effects in middle or later life? These were questions upon which attention was focused.

In commenting upon recent work in this area, Dr. Scheerer pointed out the existence of several apparently contradictory lines of theory and belief. Certain evidence, gained largely from studies with animals, suggests that brain damage in the young organism is compensated for more easily than in the mature organism (Lashley, 1938, 1950; Tsang, 1934). To produce identical behavioral changes, one must inflict a proportionately larger lesion upon the brain of a young organism than it is necessary to impose upon a mature one. In other cases (Kennard, 1938, 1942), interference with postural and locomotor function is not permanent and inclusive, regardless of the size of the lesion. These and similar findings have led to the assumption of a "resiliency" of brain function in the immature organism. On the other hand, the work of Riesen and of Sperry as well as the theory of Hebb (1942, 1949) lead to different conclusions. These authors emphasize (*a*) that early injury may prevent necessary learning processes contributory to maturation of neurophysiological structures and functions, and (*b*) that a greater specificity and differentiation in early brain function exists than is allowed for by the "resiliency" and "reorganization" hypotheses. This could explain, for example, the different effects found by Kennard in motor area damage and by others in visual area damage or reduced visual stimulation. On the other hand, Teuber and Rudel (1960) report experiments by Doty (still unpublished) on

kittens in whom the destruction of the striate cortex did not produce a change or loss in pattern vision which did occur with the same operative technique in the adult cat. These and other findings including electropotential tracings of the sensory brain regions in kittens and adult cats, as cited by Teuber and Rudel, led them to conclude that there may be comparatively larger areas of representation of the same sensory (or motor) function in the immature brain, or there may be a greater diffuseness of representation in the infant brain. Both anatomical possibilities could account for what has usually been thought of as active reorganization of function—and could theoretically replace it.

As suggestive as this type of research may be, however, there is some question about the degree to which it is possible to generalize these findings on rats, monkeys, and cats to the human level, particularly where "higher" cognitive processes are concerned. There are, of course, important differences between human and animal behavior, particularly on those levels where cognitive processes enter more greatly; the existence of such differences makes it necessary to observe caution in extrapolating results and conclusions drawn from work on lower organisms. Aside from the merits of comparative experimental research and techniques, the main line of attack on the question of early and late brain damage in *man* should be the careful longitudinal study of children.

This position has recently been emphasized and translated into an actual study by Birch (1956) and by Birch and Belmont (1960a, 1960b). In their experiments, the performance of younger brain-injured children on the Werner-Strauss marble board and tactual form board were compared with those of brain-injured adults. Here, the younger were found to be inferior to the older subjects. The need to guard against premature generalizations was shown by the 1960 studies of Rudel, Teuber, Liebert, and Halpern. Here, a variety of perceptual situations were employed using both young children and brain-damaged adults. The findings were by no means uniform with regard to early brain injury as compared to late injury. The important conclusion was that it depends on the particular performance in which the behavior was tested. It was demonstrated, for example, that brain-damaged children have special difficulty in locating hidden figures of the classic Gottschaldt type. Not only is this task more difficult at earlier stages for the brain-damaged than for normal children, but this difference in ability to perform successfully in locating hidden figures is apparently a permanent one. By contrast, in experiments where the children had to locate the auditory median plane during body tilt,

those with brain damage did not perform essentially differently from children without such involvement. However, a significant divergence between normal and brain-damaged children in disfavor of the brain-damaged group occurs at about age 11 and maintains itself into adolescence. These findings suggest that early brain damage may not show its effects in the performance of this kind of perceptual task until early adolescence. Both normal and brain-damaged young children do not show a great effect of body-tilt on the vertical setting of the luminous rod in the visual task, or on the midline setting in the auditory task. It therefore looks as if greater maturation, in the cognitive sense, i.e., being aware of one's own body, is required to allow the effects of early brain damage to assert themselves on this specific task. Again, by contrast, if one evaluates the starting position effect in auditory or visual tasks of this kind, one finds that both the brain-damaged children and the brain-damaged adults differ from normal controls by making a larger starting position error. This impairment seems to be related to the severity of defect and does not change over the years, whereas the starting position effect diminishes with age in the normal child. Finally, in a self-righting test (from a tilted position) there is a difference in accuracy between the young brain-damaged and normal child at the earliest ages; the difference diminishes and seems to disappear at later ages. This may again be the result of learning and cognitive factors leading to greater awareness and differentiation of the body awareness.

Another area of valuable investigation was pointed out by Dr. Scheerer in raising the question of different learning abilities in different kinds of brain damage. For example, the Teuber-Rudel findings were relatively homogeneous with regard to the following neurological diagnoses: cerebral palsy, ataxic, athetoid—and also did not vary with IQ variations of the children. On the other hand, Birch (1956) and Birch and Demb (1959) found important differences in the ability to acquire conditioned reflexes between hyperactive brain-damaged and mongoloid children, the latter being conditioned more selectively and extinguishing and developing inhibition more readily.

Dr. Scheerer suggested that research conducted directly with children supports the view that brain damage, occurring early in the course of human development, may have at least two kinds of effects upon cognition: it may have effects which are immediately demonstrable; and it may have effects which do not become manifested behaviorally until some time later in the life span. The immediate effects are explainable as functions of the

direct interference with cognitive processes induced by the brain damage, per se. The delayed effects may influence the performance of certain kinds of perceptual and cognitive tasks by preventing the development of the more mature functions upon which these performances depend. Thus, the consequences of delayed disturbance would become apparent only after the developmental point at which non-brain-damaged children, following their normal growth pattern, became capable of performing these particular tasks in a cognitively mature fashion.

It remains to be seen whether all immediate effects are permanent in character, or whether some may, themselves, be reduced with the compensations that might be afforded by continued somatic and psychological growth in other areas. It is also not clear whether the delayed effects of brain damage appear *only* because the normal children "pull away" from the brain-damaged, as the former approach mature adult status, while the brain-damaged remain stable in their performance. Other factors are probably involved, too. It may be that the brain-damaged children also change, but not so much as the control subjects; or it may be that the brain-damaged children perform more poorly or more abnormally as growth continues. Only the surface of these problems has been viewed.

Another aspect of the developmental problem is the aspect of *regression.* It is possible to demonstrate many formal similarities between the behavior characteristics of aged or adult brain-damaged persons and the behavior characteristics of children (Comalli, Wapner, & Werner, 1959; Wapner, Werner, & Comalli, 1960). A similarity has been demonstrated to exist between the performance of children and the aged on several kinds of tests, including tests involving the perception of verticality, and the overcoming of illusions. In some situations, the extreme age groups have been shown to perform more veridically than the controls (as with the Titchener circles); in other situations, the opposite has been found to be the case (Wapner, Werner, & Comalli, 1960). It has also been shown that brain injury (Teuber & Liebert, 1958) often affects perceptual functioning in such a way as to yield performances from brain-injured subjects which are similar to those provided by younger subjects. Thus, a relationship is clearly seen to exist between the study of cognitive development across the total chronological age span and the problem of understanding the particular effects of brain damage in children. The existence of formal similarities in performance on specific tasks, however, does not necessarily lead to the postulation of any total or overall similarity between groups (Lewin, 1951; Werner, 1937). In this area, especially, the

finding of similarity between groups in some aspects of behavior is un-generalizable to the total personality or to total organismic functioning.

The importance of theory in this area may be best conveyed by considering the implications of several possible points of view with respect to phenomena of the type described above. The committee is indebted to Dr. Scheerer for this analysis. One possibility is to adopt a theory which is based upon the principles of learning and which sees the effects of early brain damage primarily in terms of their imposition of learning defects. A theory of this type necessarily leads the worker to somewhat pessimistic conclusions regarding the possibility of overcoming the effects of early brain damage through re-education. Another possibility is to adopt a theory which postulates a certain degree of flexibility in the young organism and which emphasizes the relative ease with which the immature neurological structure compensates for or overcomes defects in normal structure. A theory of this type leads to a rather more optimistic view of the potential of the brain-damaged child. A third possibility, similar to the second in some ways but tending more toward localization, is to propose that psychological functions have multiple representation in the infant organism and achieve specific localization only as a product of development and learning (Goldstein, 1946; Gellhorn, 1950). This view, too, would incline one toward optimism, although conclusions would have to be based upon a clearer knowledge than currently exists of precisely how, when, and for how long the various functions are localized during the course of an organism's life.

The extent of the possibilities for practical application of the findings of research in this area are to be measured by the breadth of current ignorance on the subject. Every possible finding has a multiplicity of implications. It would be impossible to consider even a small proportion of these at this time.

Silent organizations. This issue came to the committee's attention during its discussions of the study of motor activities of children with cerebral palsy. It also was brought up in the context of the consideration of principles of body cognition. The question is simply: How, and on what level(s) do the cognitive components of motor activities take place? One answer is that they take place according to the classic gestalt principles of cognitive activity and that they take place at the level of *silent organization*. Since it will be presumed that the reader has a sufficient understanding of the principles of cognition posited by gestalt psychologists and

that he knows reasonably well the arguments for and against the accept-
ance of the principles, this aspect of the answer will not be discussed fur-
ther here. A word needs to be said about the concept of silent organiza-
tion, however.

Scheerer (1954) has pointed out that an important aspect of cognitive
theory is its postulation of the operation, within the organism, of *silent
cognitive organizations*. These organizations are not conscious in charac-
ter, nor are they unconscious in the sense of having been repressed or in
any way "kept from" awareness. Their status with respect to conscious or-
ganization is such that they may be reflected upon by conscious activity,
but they are not, in and of themselves, conscious phenomena. Further-
more, they are neither verbal nor nonverbal, but preverbal in content.
The person may construct verbalizable statements *about* a silent organi-
zation, but the organization itself cannot be called verbal. A silent or-
ganization operates as a behavior mediator and, as its name implies, as an
organizer. The effects of its operation are readily viewed; but the organi-
zation itself is not directly observable. Silent organizations are thus in-
ferred cognitive entities which are utilized in theory to explain the or-
ganization and direction of overt behavior.

With respect to the problem at hand, Head's (1926) concept of the
body-schema represents an example of a postulated silent organization.
The body-schema is an organization of body-experiences which functions
cognitively in the regulation of sensory data and in mediating the execu-
tion of behavior. It functions through at least two kinds of models: (*a*)
a "surface" model, which is constructed from tactile sense experience and
which relates to the meaningful cognition of body structure and (*b*) a
"postural" model which organizes cognition of body-position. Since these
schemata are not conscious organizations, however, they are in no sense
to be thought of as being "images" of the body.

Silent organizations, of the kind postulated to account for cognition of
one's own body, may be reconstructed on demand, by conscious reflec-
tion, through certain expressive devices, such as the draw-a-person test.
Or, the schema may be approached somewhat more directly by devices
which require the subject to make size or shape judgments about his
body-parts. Whatever reflective method is used, however, it is important
not to confuse the schematic models, which actually do the mediating in
body-cognition, with the consciously arrived at representations of these
models. The two are not identical for at least two reasons: First, the very
act of reflecting upon a body-schema effects an immediate alteration in

the schema itself. It sequentially focuses attention upon limited figural aspects of the organization, rather than upon the organization as a functioning totality. Thus, the reflective reproduction gives a picture of only those aspects of the organization which are salient at the time of their representation and it communicates the properties of these aspects only as they are differentiated out of their usual functioning context. Second, conscious reflection yields a reconstruction which is relatively "impure." Conscious activities are notoriously selective, and conscious selections are often accomplished as much in terms of values and of unconscious (i.e., repressed) motives as in terms of objective considerations. Therefore it is likely, especially where projective techniques are used, that a consciously produced reconstruction of the body-schema will yield not only a reflectively altered representation but a motivationally altered one as well.

It seemed best to the committee to use the expression *body-image* for referring to reflective reconstructions of silent body-cognition organizations and to reserve the term *body-schema* for use in referring to the silent organizations themselves.

The question next arose as to whether a kind of silent organization might be invoked to explain the functioning of the complex cognitive components of motor behavior, as these components were revealed in the study of children with cerebral palsy. The question was not answered despite considerable discussion of the issue. It must therefore remain open. The workers on the project itself felt reluctant to do more than point out the necessity to include cognitive components in the analysis of motor behavior. They did not wish to go on record as having specified the means by which the cognitive requirements of motor acts are carried out. Clearly, it would be helpful to know, eventually, the degree to which it is possible and necessary to account for this type of intentional organismic activity on the basis of such constructs as those offered here.

Cognition of the body. The program model of Figure 1 identifies the study of cognition of the self-as-object as one aspect of research in the broad field of psychological inquiry. It has already been pointed out that research is now under way which is directed toward the extension of the principles of inanimate event perception into the study of one aspect of perception of self-as-object, viz., the aspect of cognition of one's own body. Several important discussions were generated by the explication of this approach to the study of body cognition. A major motivating force for these discussions was Dr. Scheerer's presentation of ideas drawn from

his own theoretical conceptualizations regarding the development and characteristics of the experience of self. Of special interest was the concept of the *mine-sphere* (Scheerer & Gupta, 1960, unpublished). According to this concept, certain basic psychological considerations mitigate against the view that the cognition of one's own body is merely an extension or introversion of those cognitive operations which relate the person to his external environment. The most important of these considerations is that body-cognition takes place in the context of a uniquely important relationship between the person as cognizing subject and himself as object of the cognitive process.

One's own body is ordinarily experienced as an intimate, constant, and dependable object. Despite the slow physiological changes that actually do take place, and despite the constant replacement and renewal of tissues and body parts that go on all the time, most people feel that their bodies remain the same all of their lives. Changes may be noticed (I am getting feeble; my head is clearing; etc.), but these are experienced as being changes within a constant entity that was there yesterday, or that will be there tomorrow, next week, or next year. It is tempting to explain this stability of experience with respect to one's own body on the basis of the constancy hypothesis of external object perception. The critical issue, however, is that the experience cannot be totally accounted for on this basis alone. Unlike the constancy attached to most external objects, the constancy attached to one's physique is a heavily "loaded" constancy. That is, it has reference, not to the constancy of "that thing out there," but with respect to the phenomenologically far more important constancy of "me." A change in most environmental objects does not affect the experienced "me"; and, sometimes, changes in external object properties may have to be made very great before they become even noticeable to the perceiving organism. This is not so when "my body" is involved. A small rash, a pimple, a slight change in body function draws attention immediately. Despite the fact that body-identity remains the same (or perhaps *because* of the fact that body experience remains the same) the person is ordinarily extremely sensitive to minute changes in its structure—much more so than he would be with respect to change in other things to which he relates in an ordinarily far more casual way. The implication is that the "pressure for constancy" is much greater with respect to the cognition of one's own body than with respect to the cognition of other objects.

Another particularly important aspect of a person's relations with his

body is the quality of "unique mine-ness" which attaches to body-experience. There are organismic experiences which cannot be directly shared: pain, warmth, cold, emotions, fears, dreams, and a host of others. These experiences are private in character, and although one may describe them and communicate the fact of their existence, one cannot give them or yield them to anybody else. The uniqueness of body experience lends itself to a differentiation of self from world. The differentiation, however, is not an either-or separation, except perhaps in special cases. Rather it takes the form of a hierarchical relationship between that which is totally private about the "me" and that which is relatively public and is readily sharable with others. Certain feelings, for example, are easily and freely expressed or admitted (I am hungry). Other feelings, such as a deep sense of personal guilt, may be considered to be so private as to obviate the possibility of their disclosure under almost any circumstances. Still other feelings (I have to go to the bathroom) are ordinarily expressed openly only to those with whom one feels relatively free to share; they are neither so private as to preclude expression altogether nor so public as to permit ready expression to just anyone, except perhaps in special or unusual situations. Objects, too, take on this property of "unique mineness." We may lend a casual acquaintance our umbrella, our scarf, or our fountain pen, with little feeling of uneasiness. We would lend to very few our toothbrushes, our underwear, or our other very intimately personal possessions.

The quality of "unique mine-ness" also extends to relation with people, as individuals and as groups. One shares much more of his total self with certain special people and one even relates to these people in special ways. "My children" are always more unique, different, and personally central than anyone else's children. So also is my wife, my friend, my brother, and so on.

A correlate of the sense of "unique mine-ness" is the assignment of value. It is notable that most normal, healthy people place a high and positive value upon themselves. They also place on those persons and objects which are deeply involved in their personal mine-sphere, values which approach and on occasion exceed in intensity those applied to the self.

This briefly outlined view of the special character which permeates all aspects of body cognition goes a long way toward accomplishing an integration of concepts of "value" with the more laboratory-centered work currently being undertaken in the investigation of body-perception. Ex-

plication of unifying conceptions, such as those represented by the notions of "uniqueness" and "mine-ness" with respect to self-body relations, provides the meaningful links which are so seriously lacking between the applied and laboratory situations. One has only to review discussions such as those by Beatrice Wright (1960) and by Dembo, Leviton, and Wright (1956) to discover the usefulness to rehabilitation of the concept of "values," as this concept is used to explain reactions to disability and problems of adjustment to misfortune. It is therefore particularly encouraging to see that it is possible to formulate meaningful conceptual tools that tie these "life-problem" derived ideas back to the traditional subjects of concern to the academician and laboratory psychologist.

Body and self. An incidental problem was found to be posed by the analysis of body-cognition. It is the problem of the degree to which "my body" and "my self" may legitimately be considered to be identical psychological constructs. There is no theoretically sound reason to suppose that a full knowledge of the principles of body-cognition will automatically lead to a complete understanding of the nature and the functioning of the *self*. The former is, at most, merely one aspect or component of the latter. The work group noted that much of the current literature loosely uses the terms body-image and self-concept (or variations on these terms) as though they were mutually interchangeable theoretical conceptions. Existing practices which confuse the concepts of *body* and *self* have generated a serious semantic confusion that has broad implications. It was beyond the scope of the committee's responsibilities to consider this situation in great detail, and it goes beyond the limits of this chapter to consider the matter further. The necessity for arriving at some resolution of the terminological problem is noted, however, for it seems highly unlikely that systematic advances into an understanding of the principles of body- and self-cognition, as these relate to even broader personality questions, will be successfully accomplished until this formidable task has been completed and safely set aside along the way.

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Differential Psychology and Rehabilitation

GEORGE W. ENGLAND[1]

THE subtitle for this chapter might well have been "The Search for Individuality" for it would have expressed a major theme underlying all of our discussion. We are convinced of the fundamental importance of individuality, yet are overwhelmed by its complexity. We are not satisfied with any current theory of individuality, nor are we overly impressed with our present methodologies for studying individuality. We feel great concern about various vantage points from which to view individuality and are critical of how effectively data about *an* individual is used in counseling and clinical practice. We have focused, then, on an exploration of ideas rather than on an evaluation of what is. To this extent, we can be labeled dreamers; our answer would have to be in terms of laying out plans for making these dreams a reality—this we have attempted to start.

A presentation of our ideas can be organized around three major topics, although the discussions did not follow any such sharp demarcation. Actually, we moved back and forth within these topics throughout the total conference.

Project Individuality[2]

The first major topic considered grows out of a recognition of the complexity of individuality in both a descriptive and a causal sense. In reviewing the methods used to increase understanding of individuality, it becomes apparent that in the main we work with relatively few variables within a single scientific discipline at one time. Generally we look at individuality from only one point of view or vantage point in any single

[1] George W. England, Chairman, Leona E. Tyler, Lee J. Cronbach, Abraham Jacobs, and Donald G. Paterson were members of the work group on differential psychology. The Chairman had the responsibility for writing this chapter, which is a product of the efforts of all of the work-group members.
[2] Donald G. Paterson was largely responsible for developing this topic. For a similar viewpoint see Williams (1946, 1953, 1956).

study. True, other investigators may approach the same subject from other vantage points, but we are hard pressed to integrate such diverse findings as are likely to occur into meaningful knowledge about individuality and its development. What seems to be needed is a *longitudinal* study of a *large* number of individuals from *birth* to *death* by investigators from a *wide* variety of scientific disciplines. While the undertaking of such a project poses monumental problems in research methodology, administration, and cost, it seems likely that more would be learned about individuality through this approach than in any other fashion.

While it would seem premature to suggest the outlines of such a major research undertaking at the present, we would encourage its serious consideration. "Project Individuality," as it might be named, has two major integrative features which would seem important in increasing our understanding of individuality. First, it would be a developmental study in nature; that is, it would be concerned with the whole developmental process of individuality. It would provide descriptive information about individuality at different life stages and periods, but more importantly, it would seek to answer the complex of questions concerning "how" and "why" individuality comes about. These are the important questions about which we currently have only fragmentary information and evidence.

The second integrative quality of this program of research would be the simultaneous study of individuality by a large number of disciplines. Each discipline would study the same sample of individuals through utilization of their best techniques, instruments, and methodologies. What, for example, are the relationships between biochemical individuality and psychological individuality? To what extent and under what circumstances is individuality a product of genetic factors? In what ways do environmental presses mold individuality? In what ways does the development of individuality differ for individuals with different physical and emotional handicaps? What are the major parameters in the development of individuality? Current knowledge can only hint at and suggest answers to these questions; "Project Individuality" offers promise of more complete answers. We would strongly endorse such a research program as moving in the direction of "the proper study of mankind."[3]

A Limits-Selection Framework for Studying Individuality[4]

The second major topic discussed centered around an extension of Tyler's concern and research about the adequacy of the structures we have

[3] Lee J. Cronbach has asked to be recorded as dissociating himself from this recommendation.
[4] Leona E. Tyler was largely responsible for the development of this topic.

imposed on psychology in relation to the study of individuality. Here we draw heavily on her earlier writings (Tyler 1959, 1960).

It is helpful to repeat Tyler's position in considerable detail—that the core of individuality consists of a person's choices and the way he organizes them—before presenting extensions of this point of view. The following several pages are quoted directly from Tyler (1959):

> Individuality has many champions these days. "Conformity" has become almost a nasty word. "Adjustment," for years a central concept in psychology and mental hygiene, is coming to be regarded with suspicion. Riesman's portrayal of other-directedness seems to have stimulated in most of his readers a firm resolve not to be that way. Lindner's prescription for rebellion woke echoes in thousands of psyches. Colin Wilson's collection of "outsiders" was lauded by reviewers and critics. Right now practically everyone is recoiling in horror from Whyte's picture of the organization man. An increasing number of existentialist novelists and playwrights are highlighting the individual's search for his own identity. In intellectual circles, at least, it is getting so that a person must be something of a nonconformist in order to conform to the prevailing standards. But I am afraid something like the much-quoted weather remark applies here: Everybody talks about individuality, but nobody does anything about it.
>
> This is where the psychologists come in. What we have often been able to do is to take an idea that teachers, politicians, playwrights, philosophers, or theologians were concerned with, and make it *workable*. I do not mean this in any narrow sense. When I say a workable psychology of individuality, I mean one that would generate good research ideas, which, in turn, would lead to steady increases in dependable knowledge. I mean one that would produce a technology of assessment useful to clinical workers, teachers, and personnel men. I mean one that could be applied in the day-to-day activities of people who are not psychologists, such as diplomats, businessmen, and construction foremen. The problem as I see it is: How can we modify the system of psychological principles and skills that are now being applied in all these situations so that the uniqueness of the individual is really taken into account?
>
> In differential pychology we have been concerned with this for something like 60 years. We have worked out techniques for measuring hundreds of traits. We have attempted to match particular individuals with particular situations, in schools, in industry, and in military settings. We have developed skills that enable us to help individuals make their decisions, solve their problems. Out of this activity has come a sort of model that we use in thinking about the general phenomena of individuality. The basic concept is that of dimension. Each of the traits that have been identified can be thought of as an axis along which any one person's position can be located. In this system the *uniqueness* of the individual is defined by his *combination* of measurements along all possible dimensions. A person is represented by a point in n-dimensional space. No one else occupies exactly the same position.
>
> Useful as this approach has been, I have found myself questioning more and more whether it is really adequate at this stage in the development of our science. For one thing, it does not *feel* quite right. Most people find it hard to think of themselves as points in n-dimensional space. Occasionally I en-

counter an unusually articulate student who reacts violently against the whole conception, and I think that at a lower level of awareness many of the others show a kind of passive resistance to it. For another thing, the system shows signs of becoming completely unworkable, in the sense I have defined workability, because of the proliferation of dimensions. It looked for a time as though factors and their relationships with each other are so complex that factor theory does not really constitute a simplification. But the most important reason I see for questioning the adequacy of this way of looking at things is that we are no longer making the progress with it that we have a right to expect. Correlations with criteria significant for theory or for practice are not going up very much. Seldom do we find a cross-validated multiple correlation with any criterion that exceeds .6. The addition of new dimensions and the increasing refinement in the ways we measure the old ones are not really "paying off" very well. The possibility is at least worth considering that we are approaching the limit of what can be done with this particular system.

In the more general psychology of personality, not all research workers and theorists have been particularly concerned with the question of individual uniqueness and how it can best be conceptualized. But a number of them have considered this problem, and developed some potentially useful ways of looking at it. Holistic Gestalt theories have never accepted the additive assumptions made in trait and factor work and have stressed individuality of pattern or organization. The Freudian conception of developmental stages has furnished one framework for analyzing differences between individuals. The Freudian concept of defense mechanisms, differentially developed in different persons, constitutes another such framework. The whole concept of cathexis and object choice would seem to furnish an even richer system within which the uniqueness of individuals could be described. Adler's concept of style of life is a way of thinking about individuality. So are Jung's psychological types. Gordon Allport has maintained a continuous emphasis on the ideographic as contrasted with the nomothetic. Henry Murray's system for detailed intensive study of individuals has been a dominant influence in personality research for more than 20 years.

When one examines these concepts drawn from personality theory to see which ones are really workable, however, it becomes plain that hardly any of them have as yet led to what one might call an adequate *technology*. By and large, the vast majority of so-called personality *tests* are measures either of general maladjustment, the extent to which an individual deviates from some hypothetical average of general "normality," or they are measures of the particular *variety* of neurotic or psychotic trends he shows. The utilization of the other theoretical treatments of individuality has been spotty and haphazard. A number of workers, for example, have tried to measure introversion-extraversion, but they have not taken into account the rest of the Jungian system for describing individuals. There have been attempts to make dimensions of Freudian oral and anal systems, but no one has really utilized the cathexis concept as a basis for standardized techniques of individual assessment. Of the personality theorists, Murray has come closest to developing a usable technology. A number of other workers, such as Allen Edwards, have devised ways of measuring the different needs or motives which are the most basic variables in the Murray system.

Even in cases like this, however, where concepts from personality theory have led to methods for the appraisal of the individual, the assumption is still being made that differences between persons can be measured in terms of

traits or dimensions. A score on a personality test purports to tell how far the testee is above or below the mean of some reference group. This kind of comparison in terms of trait measurements is involved even in projective tests, although when they are used, the final clinical report may add some extra nonquantitative descriptions.

What I have been coming to believe is that individuality will continue to elude us as long as we restrict our thinking to models based on dimensions or trait continua. Little by little, evidence has been accumulating that some of the crucial defining features of psychological individuality are to be found in two aspects of experience and behavior that are not easily expressed as dimensions and that can best be thought of as *dis*continuous. I call these two aspects of individuality *choice* and *organization,* though I am by no means certain that these are the best labels. But whether the terms are adequate or not, I hope at least to be able to tell you what I mean by them.

Partly what led me to a reorganization of my ideas about individuality around these concepts was a sort of inherent reasonableness about them. With the swift passage of the years one becomes acutely aware that human life is finite. It lasts only a limited time, and each person has only a limited number of hours each day at his disposal. Only a small fraction of the potentialities with which his life begins can ever become realities. By the time his infancy is over, a considerable number of them have already been ruled out by the fact that he has spent his most formative years in one particular kind of home rather than another. But the person is still confronted at each step of his life with an incredibly complex assortment of stimulating conditions and behavior possibilities. In order to function at all, each of us must choose from this plethora of possibilities and organize what he has chosen.

Consider, for example, Barker's report on the Midwest study (Barker & Wright, 1955). If even in one little town there are 585 distinguishable behavior settings, 60 to 79% of them open to children, and if during the course of a single day one child engages in almost 2,500 behavior transactions with 749 different behavior objects, the *possibilities* for influence that might help to determine individuality are absolutely staggering. It seems plausible to me to assume that one of the main things that happens as the boy or girl interacts with this complex milieu is that he develops patterns of choices that serve to let some things in and to keep others out. If to this screening function we add some sort of organizational process acting upon the experience choice has admitted, we begin to come close to the meaning of individuality. In counseling and therapy we are actually using this sort of conceptualization in our attempts to understand clients, although it is not always expressed very clearly, and, as we shall see, some research workers have been developing methods of assessment that can be considered pilot projects on the way to a new technology.

Let us then take a look at choice and organization separately, realizing as we do so that they are not independent and do not actually occur separately. I have mentioned that I do not think choice is a very good word for the phenomenon, but I have not been able to think of a better one. Perhaps some other figurative statements can serve to make its meaning clearer, however. I have compared it a moment ago to a screen. This is really too fixed and static a picture. We might see life instead as a restaurant with a large number of items on the menu from which two or three are to be selected. Or we might take our cue from the poets who have seen life as a road, which forks every now and then requiring that the traveler go in one direction or the other.

All these analogies have the merit of reminding us that a person's life is always bounded by limits of one kind or another. He is not free to do anything he wants to or to go in any direction. I do not think it is necessary to get into the old controversy over determinism versus free will at all. Certainly at any one time a large number of behavior possibilities are ruled out by external circumstances, by personal inadequacies, and by previous commitments. But within these analyzable limits there is a larger or smaller space in which movement of different sorts is possible. It is this movement in one direction rather than another, within defining limits, that I am calling choice.

It seems clear to me also that a large part of the choice process is unconscious. The individual's choice of the aspects of a complex stimulating situation to which he will respond is a universal process, constantly going on. It is only the small part of it of which we are aware that we call freedom. In a very real sense it *is* freedom, because in human choices, awareness makes a difference. It changes the nature of the total situation and thus leads to choices that may be different from those that would have been made unconsciously. And in this small margin of difference that awareness makes lies our best hope for progress in living our own lives wisely and helping those it is our responsibility to help.

A workable psychology of individuality would provide us with ways of recognizing significant patterns of choices that have been made at previous stages of life, consciously or unconsciously, and of widening the margin of awareness in any individual's present experience. To accomplish this we need a different approach, a different kind of assessment from the customary measurements of traits or dimensions. Let us go back for a moment to our restaurant analogy. Two men are having dinner together. One orders jambalaya, artichokes, and crepe suzette. The other orders fried chicken, corn on the cob, and apple pie. Conceivably we could scale the degree of liking for each of these foods and compare the two men on these several scales. But if we did just this, we would miss the main distinction here. It is the choice of the particular *combination* of foods, jambalaya *and* artichokes *and* crepe suzette, or chicken *and* corn *and* apple pie that reveals something about each person. Measuring the strength of these preferences is unnecessary and irrelevant.

It is here, in connection with the assessment of the meaning of combinations of choices, that the research activity on which I have been principally engaged enters the picture. In one way or another I have been dealing for some 20 years with the responses men and women, boys and girls make to Like and Dislike items on the blanks we have been calling interest tests. But it was not until a couple of months ago that it suddenly dawned on me that the major significance of all of this work is that it points the way to a kind of assessment quite different from trait measurement, namely, the direct assessment of choice patterns. True, we have been expressing what we found in terms of traits or dimensions that we labeled "interest in science," "masculinity-femininity," or "occupational level." But when we did this, the findings never fit the labels very well. On the Strong test, for example, the correlations of the numerical scores people make on the various scales with criteria purporting to represent degrees of success and satisfaction have almost always turned out to be rather low. The really impressive relationships Strong (1955) has obtained in his 20-year follow-up of Stanford students have been based on *letter grades* as predictors of a special kind of criterion—that of remaining in the original occupation vs. shifting to another.

The letter grades on the Strong are derived from the scores but carry a dif-

ferent meaning from customary trait measurements. An "A" means "Yes" with regard to the question of whether a certain person belongs in a certain occupation, a "C" means "No," and a "B" means "We cannot be sure." We can relate these grades to the concept of choice we have been considering by putting it this way: An A signifies that the person's characteristic pattern of acceptance and rejection of life's varied possibilities is like the choice pattern characteristic of persons in a certain occupation. What we should expect then to be able to predict from such a score is not how well the person will do the work of his chosen occupation, or how much satisfaction he will express with his job, but simply the way he will make his choices at later junctures of his life. This makes sense of the high degree of validity Strong's recent studies have shown for the test. What they are telling us is that an indicator of the nature of an individual's complex pattern of choices in the occupational area predicts well later complex choices in the same area.

My own special research activities have focused on an attempt to trace such choice patterns backward into childhood rather than forward into maturity. In 1946 I entered upon a longitudinal study of about 200 children, beginning at the time they entered school. The first half of this group is graduating from high school this year. They have taken the Strong test each year during the high school period, so that I have a clear picture of what their interests are like now at the end of adolescence. I am attempting to relate these interest patterns (or choice patterns, as I should now prefer to call them) to various personality characteristics, background factors, and special abilities, measured now and at earlier periods of the subjects' lives.

At the outset I was thinking of each of the variables as a trait and planning to correlate them with one another. The shift of this concept of choice patterns has changed my plans for analyzing the data. The appropriate type of measurement for these problems is nominal, not ordinal or interval—that is, simple categorization rather than continuous distribution. And to relate one of these choice categories to another, the appropriate statistic is not correlation, but some nonparametric significance test leading to a statement of probabilities. What this means concretely so far as my particular body of data is concerned is that I will classify my subjects in various ways, based on their final Strong scores, and then ask specific questions of the data from earlier stages. For example, I shall place all boys whose scores point to the choice of some science career in one group, those who definitely are not in the science group in another. I will then tabulate other test results and biographical data for these groups, using total scores, subscores, and in some cases separate items, and look for patterns of combinations of characteristics related to this particular choice pattern. (Such findings will of course need to be cross-validated. For some of the relationships, supplementary data on other groups not in the main study will serve this purpose; in other cases extra studies will need to be run.)

The main point I am trying to make here is that to work out a technology of choice measurement we must use classifications with regard to choices rather than continua, validate our assessments using choice criteria rather than measures of degrees of happiness or success, and state the relationships as probabilities that one thing will lead to another rather than as correlation coefficients. The work with the Strong Vocational Interest Blank is important to all of us who are concerned about personality assessment not just because it has a great deal of demonstrated practical value, but because it demonstrates that this kind of assessment, of choice patterns rather than traits, does work. Even-

tually we may have many such assessment devices, covering a much wider variety of patterned choices. Measures of preferences, values, and attitudes would seem to be clearly in this area, but as yet we are still trying to score and interpret them as traits or dimensions.

The work with the Strong test demonstrates that we need not abandon the concept of predictive validity when we shift from traits to discontinuous patterns of choices. The only difference is that we need to find criteria that represent choices rather than distances along some scale. There are many of these. My impression is that criteria are far less of a problem here than in customary validation studies. In the academic area they would include things like staying in school vs. dropping out, selecting one major rather than another, choosing "easy" or "hard" electives, going in for social success or for academic success. In a broader social framework, choice criteria would include such things as suing for divorce vs. attempting to work out marital problems, or parole keeping vs. violation. Choice criteria in the clinical area would include such things as the development of one kind of symptom rather than another, or the decision to seek psychotherapy vs. reliance on tranquilizers. These have all been used in research but not for the purpose for which they would seem to be particularly appropriate—research on the relationship of choice patterns to one another.

It is quite feasible, then, for us to carry on research that will enable us eventually to make much sounder inferences about individuals by observing what they choose. But this is only part of the story. I have been convinced, primarily as a result of my counseling activities, that the *how* is as important as the *what*. There are several aspects of choice we must consider. I have already touched briefly on the matter of differences in *awareness*. To understand an individual we must know how conscious he is of the choices he is making. Another aspect probably related to this is the age or developmental stage at which the first step in this direction was taken. It seems probable that some of the most important choices of all are made in the earliest years, long before the child is clearly aware of the direction he is taking. Whether to be active or passive in one's encounters with life, whether to seek security through dependence or independence, whether to relate oneself to persons or nonpersons (to use Anne Roe's terms), these are the kinds of fundamental early choices I have in mind. Research on concepts of sex role seems to show that a basic decision to accept one's own sex and to live by the code that goes with it is often made by the age of three. The Freudian concept of cathexis is clearly relevant here. Existentialist writers like Sartre have also emphasized unconscious choices and their significance in personality.

Another aspect of choice, perhaps somewhat easier to study, is the question of whether it has been made positively or negatively. It may make a considerable difference in the quality of an individual's life whether the choices that constitute its basic structure have been made by grasping what one wants or by rejecting what one does not want. I ran into this problem years ago when I first began to work with blanks calling for Like and Dislike responses. I became convinced that this negative choice process is far more significant in human life than we are assuming it to be. If we examine the scoring weights for most scales of the Strong test we find that so-called interest scores are based more on what we reject or rule out than on what we wish to do. Dislikes influence scores more than Likes do. My work with children in grade school suggests that interest development is primarily a matter of learning to rule out clusters of things and activities one once liked.

There are probably clear-cut individual differences in this area of positive vs. negative choices, and they would be well worth some special study. In our own profession, for example, it is conceivable that some of us are here because no other direction for our efforts was open to us. We needed to avoid, say, low prestige, low pay, mathematics, routine activities, and religious dogma. When we got through ruling out the occupations that would not do for one or another of these reasons, we found ourselves in a graduate psychology program. Others of us may be here because of an intense curiosity about human behavior and motivation, a strong urge to try out different experimental procedures and see what happens. Probably most of us have some of both kinds of motivation. Probably most of us score A on the Strong key for Psychologist, but that in itself does not show whether positive or negative choices predominate, since there are different combinations of items that will produce such a score. Another of these "How" questions in which I am interested has to do with the *basis* upon which choices have been made. Do they grow out of identification with a parent or some other significant person? Do they reflect the point of view of some group to which the person belongs? Have they been influenced by particular experiences or by specific kinds of information? How much thoughtful consideration of possible alternatives has gone into them?

There is one more aspect of choice as a clue to individuality which is in some ways the most important of all, though it is the hardest to investigate. I mean the question as to how *central* or deeply rooted any given pattern of choice is for an individual. It is these basic *unalterable* choices that give a person a firm sense of self. Just making choices with regard to separate objects and actions is not enough. It is necessary that a person in some way *choose to be himself*. The idea is beautifully expressed in the words Yourcenar attributes to Hadrian in the novel *Hadrian's Memoirs:*

> Whatever I had I chose to have, obliging myself only to possess it totally, and to taste the experience to the full. . . . And it is in such a way, with a mixture of reserve and of daring, of submission and revolt carefully concerted, of extreme demand and prudent concession, that I have finally learned to accept myself.

There is no dearth of discussion of self concepts, self-acceptance, and identity in psychology today. What I have been thinking about a great deal is how to make these ideas more "workable." Here too I think we can use interest tests as tools for work on the larger problem.

To sum up, the thing that distinguishes the kinds of research studies I have been using as examples from much of the previous work on individual differences in personality is a design based on classification rather than measurement (or on nominal rather than interval measures, if we wish to use Stevens' terminology). We select a group that appears to be homogeneous with regard to one particular aspect of their choices. By contrasting them with another group, we can obtain evidence about what this aspect of choice means—the kind of previous experience that is associated with it, the kind of subsequent choice behavior to which it leads. But because we are interested in the choices made by individuals, we will not stop with the statement that a relationship is significant at a given probability level but will attempt also to explore the differences between the persons who do and those who do not follow the prevailing trend.

I hope that nothing I have said will be taken to mean that I think we should discard the measuring techniques we now have for appraising the individual,

or the knowledge that has accumulated from their use. Certainly the differences in physical and biochemical characteristics, that can be measured with considerable accuracy and expressed as continuous variables, are very significant. The research that has been going on for many years at the California Institute for Child Welfare has shown us how meaningful such a variable as age of reaching sexual maturity can be when we try to understand individual growth patterns. Certainly the differences in mental abilities and achievements that we pick up by means of our standardized tests represent important components of individuality. What I am trying to suggest is that, when we have recognized that there are choice patterns that are *not* continuous variables, we will be able to *utilize* more effectively all the resources we now have. We can still use our measures of physical characteristics, intelligence, special abilities, and personality traits to give us an approximate picture of an individual. The information about his distinctive patterns of choices will enable us to sketch in the finer lines of his portrait—to make it definitive.

As I stated in the beginning, individual uniqueness for me is described primarily in terms of *choice* and *organization,* and I consider it the task of psychologists to make those concepts workable—to bring them into the general stream of thinking in research, assessment, and practical activities. I have used up nine-tenths of my time talking about choice. This is not because I consider it the more important of the two, but simply because my own research activity has been in that area and I have done more thinking about it. Fortunately, an increasing number of psychologists have been presenting interesting new methods of assessing the ways individuals organize their experience. Perhaps the best known of these methods is Stevenson's Q sort. Other sorting techniques, originally developed as research tools in the study of concepts, now are being applied to the study of individuals. George Kelly's Role Construct Repertory Test is an ingenious way of finding out something about the organization of the person's relationships to other people who are significant in his life. Osgood's semantic differential represents still another approach to the assessment of individual patterns of organization. While a number of other things could be mentioned, perhaps these examples are sufficient to indicate directions I should like to have us move in our attempts to understand individuality.

There are many related areas we might consider if time permitted. We might turn to the experimental work on choice and decision in general psychology. We might look at the flourishing new mathematics of decision processes. We might attempt to relate some philosophical systems to these ideas. We might take up the implications of these ideas for psychotherapy and education.

What interests me most right now, however, is the significance of concepts of choice and organization in an inclusive psychology of the *development* of the human individual. We are coming to see development as a life-long process in which choice and organization play a crucial part. In a certain sense each person *is* a "self-made man." At each stage of our lives, we impose limits on the next stage, by the choices we make and the ways in which we organize what we have experienced. There is an important something that each individual must do for himself.

In extending these ideas, Tyler (1959) proposed that we consider the basic unit of study to be *one developmental stage* in the life of a person. It seems most useful to define such stages in terms of developmental

tasks as has been done by Havighurst (1953) and by Erikson (1950).
A developmental task is a challenge to be met, something to be learned
or mastered, if a person is to move ahead in a particular culture with the
capacity for meeting future challenges successfully. Particular research
studies could focus on a particular stage or follow through with a longi-
tudinal study of successive stages. But in either case, one stage at a time
in the life of one person would be examined.

Before we consider detailed proposals for the study of such "units of
individuality" several preliminary considerations should be pointed out.
First, this set of concepts belongs within a broad theoretical approach to
socialization. It represents the view of socialization theory one gets from
a position at an intermediate distance from the phenomena being ob-
served, from which we can see both their universal and their individual
aspects. All persons growing up, working, and growing old in a particu-
lar culture must have certain standards of behavior, certain values and
attitudes internalized if the society as a whole is to survive. But the proc-
ess of socialization has its individual side as well. Persons must develop
in ways that will prepare them for particular *roles* in the total complex
pattern of the culture. Of 100 children born this week, a few must grow
up to be professional men, a larger number to be tradesmen and indus-
trial workers, a sizable fraction to be clerical workers. Artists, homemak-
ers, and community leaders must somehow emerge from the group as the
developmental process runs its course for all. If one looks at the devel-
opmental process from the point of view of society as a whole, he sees
it as an enormously complex machine in which lives are shaped to built-in
specifications. But if one looks at it from the psychological point of view,
one sees choice, decision, and selection going on. A person is not really
moulded by his culture. He reacts to its pressures and *selects* from its
many alternative possibilities those that best suit his emerging self.

The second preliminary consideration to keep in mind is that as re-
search workers we shoud try to utilize existing developmental theories
concerned with particular aspects of development—e.g., vocational de-
velopment—but not limit ourselves entirely to the collection of the kinds
of data they suggest. At every decision point, we should try to go some-
what beyond the existing theory in our data collection. Thus every re-
search undertaking would contribute answers to two sets of questions,
the first set specific to whatever is being studied (e.g., vocational choice,
measurement of self concepts, attitude change, career development), the
second set having to do with the developmental process as a whole. It

would seem shortsighted, for example, to study career choices without considering the question of the meaning of a career in each person's total economy. What we should like to see in research planning is a way of designing studies on specific topics so that they will provide information that can be generalized to the field as a whole.

To turn, then, to some more specific concepts around which we can organize our thinking with regard to the designated unit, one developmental stage in the life of one person, we can think of the process in which we are interested as made up of four interacting subprocesses: (*a*) the setting of limits; (*b*) the selection of possibilities for future development;[5] (*c*) learning; and (*d*) revision of limits previously set.

The most unfamiliar feature of this theoretical approach is the emphasis on limits. Yet in some ways it is the most obvious thing about the whole developmental process, which can be described as the transformation of potentialities into actualities. Only a small fraction of the potentialities inherent in any human life at the beginning are ever actualized. For example, at the age of one, a child has potentialities for fluent expression in several thousand languages. By the time he is two, most of these potentialities have been lost because he has had the mark of one language stamped upon him for life. This narrowing or limiting process is accomplished at first through selection carried on consciously or unconsciously by forces and persons outside the individual's own control. Increasingly, as he grows older, he himself sets his limits through his own choices. But in one way or another, the selection process *must* occur. Each person has only 24 hours a day at his disposal, and he lives only a relatively small number of years. The complete actualization of all potentialities is impossible.

In studying an individual at a certain life stage, the first thing that can be analyzed is the nature of the limits within which his development is occurring. There would seem to be at least four distinguishable varieties of limits in which we might be interested. The first consists of limits based on environmental circumstances. The second consists of limits based on relatively permanent conditions of the individual—characteristics that can be objectively determined, such as physical handicap, level of intelligence, special abilities and basic temperamental traits as distinguished from more surface personality traits. These are characteristics that cannot really be modified to any large extent. The third consists of limits based on previous learning and the person's success or failure in previous

[5] The term "selection" has been substituted for Tyler's earlier use of "choice."

developmental tasks. The specific things the person has learned or has not learned at previous stages, the tasks he has mastered or not mastered from previous stages, set limits on what can be done now. The fourth consists of limits dependent on a person's attitudes as contrasted with his temperament. Attitudes, values, what a person approves of and disapproves of—all these seem relevant.

The second feature of a stage or period that can be studied is the selection process that is now going on. Selection occurs in different ways; some of it stems from the individual, some of it is done by others. Some selection seems almost a matter of chance. For instance, when a boy's parents die and he goes to live with grandparents, some different potentialities are selected to be actualized. If a boy from New York goes to live on a farm in Minnesota, the change is not anything he has selected, but it does exercise a selective effect. It keeps some lines of development open and closes out others. The aspects of selection in which students of individuality are always likely to be most interested, however, are those based on choices the person himself makes.

The third aspect of this life stage process is a learning process within the channels selected. The learning that a person does is learning *within* a space for which the boundaries have already been set. Many kinds of learning take place, such as increase in knowledge, increase in breadth of information, and increase in differentiation or fineness of structure. For example, think of a person who decides that he is going to be a psychologist. The learning that goes on following this choice involves making a lot of distinctions and putting ideas together in various ways. A very finely differentiated structure develops around the central objective chosen.

The fourth process that should be considered is revision of limits. Revision of limits would seem most likely to occur with limits based on previous learning and limits based on attitudes. Some revision of limits based on circumstances may occur, but limits based on relatively permanent characteristics of the individual do not seem subject to change or revision.

This total development process (as viewed here) can be seen graphically in Figure 1.

At the beginning of any early stage in a person's life the possible behavior alternatives (what an individual might do) are numerous. By the end of the stage, some major limits will have been set, narrowing considerably the band of behavior alternatives. Within the narrower band of
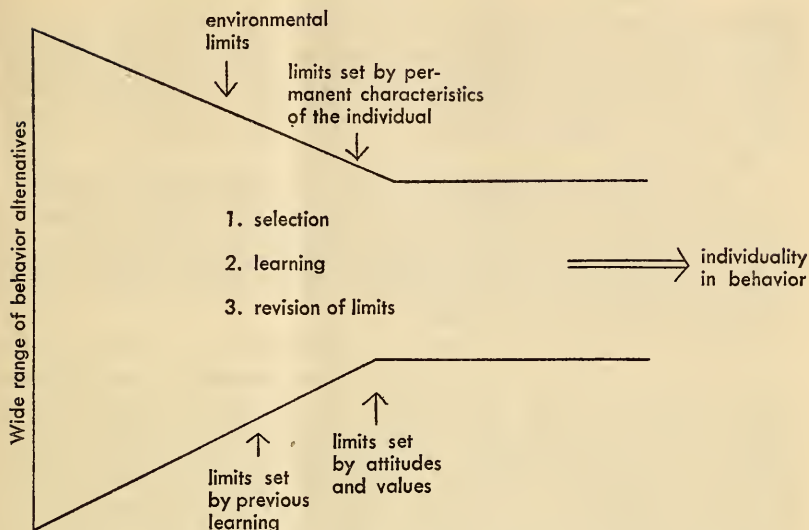
Figure 1. A research schema for studying the development of individuality.

alternatives, the three major processes as posited are selection, learning, and revision of limits. The effect of these three processes is largely influential in determining actual behavior (what an individual does do) and in developing individuality. While such a schema is unquestionably over-simplified, it can serve to point out the essential points in such a framework for research on individuality.

Again, we would heartily endorse the types of research which are suggested by such a framework. The extent to which our expectations are fulfilled will be determined more by the nature of studies done within this framework than by the system's logical elegance. At present, it only represents a general way of conceiving of individuality and its development for research purposes.

Specific Research Suggestions

After considering two general approaches to the study of individuality, it seemed useful to ask ourselves the question: What do these approaches to individuality suggest about more specific, short term research questions? While it is certainly apparent that the suggestions which follow could be generated from quite different kinds of thinking than ours, the important point is that they are questions which are relevant to a greater

understanding of individuality. In other words, as we see it, they are questions that need to be answered. We did not attempt to develop each suggestion into a full-blown research project and that is not attempted here. Our aim is to suggest areas where we think specific research is sorely needed.

1. *Study satisfaction derived from work of groups that had made similar career choices but on the basis on quite different limiting factors or sets of limits.* Here it would seem that study of physically handicapped groups as compared with nonhandicapped groups might provide some of the suggested differing sets of limits.

2. *Studies to determine the kinds of "previous stage" learning which are possible or at least are quite promising in probability terms.* For example, many people who have engaged in jobs requiring physical labor have a very limited total range of life experience; work is a major aspect of their life. If they are *forced* to enter white-collar occupations (because of physical handicaps or for other reasons), it may be important to include some new avocational activity within their framework because work now is not all compensating. There is little question that many such individuals can go back and learn high school English or eighth grade arithmetic, but can they go back and pick up social skills that should have been learned in adolescence? In other words, what types of previous stage learning are possible and under what conditions? To what extent can limits be revised?

3. *Experimental attempts to change attitudes and values about the meaning of work in a person's life.* Can you, for example, change the attitude of a lumberjack toward clerical work? Again, this is relevant to the question of revision of limits.

4. *Do individuals who have a history of actively selecting alternatives react differently to crisis situations (sudden onset of a serious disease) than individuals who seem to operate on a policy of going along with circumstances (passive selection of alternatives)?* Again, physically handicapped individuals would seem to be ideal groups to study in this respect.

5. *The development of threshold norms on aptitude and ability measures at different life stages.* Such threshold stage norms would indicate scores on various tests which should be considered as limits in making selections at various life stages. Such norms really combine the concept of age norms (here translated into stages) with validity data in expectancy table form.

6. *An examination of the significance of different ranges of test scores*

(e.g., interests, aptitudes) in terms of limits and selection. Low scores may be important because they set limits. Intermediate scores may have almost no significance (percentile ranks from 25 to 75), while high scores may affect values and self concepts and thus help to determine selections. They may not be so important in terms of learning, success, or proficiency.

7. *The development of more adequate measures of "values."* It is felt that such instruments would be extremely useful in providing individuals with a clearer understanding of their values and would allow them to make selections (in the whole development process) in line with their values.

Summary

As indicated at the beginning of this chapter, our focal point for discussion involved individuality—greater understanding of individuality and greater application of its implications. We have offered two general vantage points from which to study individuality and several suggestions for specific research projects. The relevance of increased understanding of individuality to rehabilitation problems seems obvious. To us the stakes seem high; the time for concentrated effort is upon us.

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CHAPTER IV

Learning, Behavior, and Rehabilitation[1]

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INTRODUCTION

W E ARE concerned here with exceptional children who were born "too soon," with adults who live "too long," and with people in between who are disabled by accident or disease. This group includes a sizable fraction of our population, numbering in millions, for, except for the relatively small proportion who die in accidents, no one dies healthy. As medicine is more and more successful in saving individuals who once would have died, as our machine culture becomes more dangerous and more automated, and as the proportion of aged in the population increases, there will be few whose lives are not touched directly or indirectly by physical, mental, or emotional disability.

[1] In this work group no prepared papers were presented; there was little advance - preparation of the participants; and there was no formal structuring of the discussion procedures. Discussion was informal and free, sometimes wandering and sometimes sharply pointed. It reflected general unanimity on some issues and sharp controversy on others.

A narrative summary failed to do justice to the spirit or the content of the meetings, and for this reason a partially verbatim but highly condensed and often paraphrased version of the discussions was prepared instead.

Most of the humor, the interrupted statements, and the modest reservations such as "it seems to me," or "I may be wrong but," have been eliminated from the record as have the frequent references to and restatements of points made by others. Eliminated also were the fascinating and surprising examples of cases and research where each participant, at least once, had applied behavioral principles with great benefit to handicapped individuals ranging from deaf children to psychotic adults, although they are neither applied nor rehabilitation psychologists. Their exciting descriptions of the interaction between practical gain and theoretical advancement in this work deserves to be communicated to a wider audience of rehabilitation workers, but unfortunately it cannot be done here. Finally, the conference working papers, the orientations to rehabilitation problems, case illustrations, discussions about conference procedure, and topics not directly relatable to rehabilitation problems and behavior theory have been deleted.

It is too much to hope that the process of selecting, eliminating, combining, and paraphrasing has not done some damage to the actual statements and beliefs of the participants. For this reason no statement may be attributed safely to any participant, and the responsibility for all errors of omission or commission is solely the Chairman's.

[2] Lee Meyerson, Arizona State University, as Chairman, had the responsibility for writing this chapter, which is a product of the efforts of all the work group members.

In the past a disability was often considered a personal misfortune, but it is becoming clearer to many that it is also a social misfortune. It is becoming more obvious that educated, productive people are the basic resources of the nation, and it is predictable that the concept of rehabilitation will come to include not only the retraining of the employable disabled but also the vocational rehabilitation of those displaced by automation, and the personal rehabilitation of those who are ill.

Some of the ways in which psychology and psychologists could prepare to meet these present and future challenges were discussed at the Princeton conference in 1958. *Psychology and Rehabilitation* reports what was done there with respect to defining the role of psychology.

The Office of Vocational Rehabilitation is now seeking from us, and the other groups here, a consensus of informed opinion about the contributions that psychology can make to rehabilitation and the kinds of research that should be selected for support. It has asked the same questions of some other professional groups, and from some of them it has obtained answers in the form of detailed lists of questions and problems that deserve investigation.

Our specific charges are to contribute significant research ideas on psychological problems in rehabilitation; to motivate psychologists to submit well designed proposals for rehabilitation research; to provide precepts of good research planning to applicants; and to furnish guide lines for the OVR Advisory Council to use in considering applications.

My OVR report, *An Analysis of Research Needs in the Psychological Aspects of Rehabilitation,* was an early attempt at meeting the need. It placed major emphasis on research tactics and research administration— the conditions that are necessary to stimulate fruitful rehabilitation research—rather than a list of problems ranked according to priority, which should be investigated. Since then, there have been several OVR-supported conferences that have dealt in whole or in part with various kinds of psychological research in rehabilitation, and they have reported essentially similar conclusions. Something more concrete or programatic still is to be desired, however.

—How did the field of learning happen to be included in the conference?[3]

—First, the disabled person often has to learn new tasks, or he has to relearn to perform an old task in the same way he originally did it, or he

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[3] This is a quasi-verbatim report. Dashes at the beginning of a paragraph indicate the points at which there is a change in speakers.

has to learn to accomplish an old task in a new or different way. The tasks cover the whole range of sensory, motor, perceptual, emotional, motivational, cognitive, and social learning. In behavioral terms, the problems of the disabled person require the acquisition of some new behaviors, the maintenance of adequate behaviors, and the extinction of inadequate or deficient behaviors.

Second, many fields of psychology have been represented at the several OVR conferences, but people of your persuasion have not been very much in evidence. Behavior theory has a great deal to contribute. It has called attention to interesting phenomena and it has an excellent technology. I am not sure that behavioral explanations of the phenomena are correct, but that remains to be seen.

Third, the learning approach to behavior is now one of the hottest and most productive areas of investigation in psychology. Behaviorists are reemerging from the animal laboratory and casting new light on some very practical problems of initiating and controlling human behavior. It is clearly predictable that there will soon be strong, widely accepted, behavioral approaches to personality, counseling, psychotherapy; and behavioral explanations for concepts such as value, need, and goal which have previously concerned only the "dynamic" and "cognitive" psychologists.

It seems clear to me that learning theorists have a contribution to make to rehabilitation psychology. Their present representation in rehabilitation, however, is practically nil. Perhaps this conference can help change that state of affairs by attracting the attention of a new group of psychologists to rehabilitation problems and by alerting rehabilitation people to the important contributions that can be made to rehabilitation psychology by research on learning.

—There is a liberalizing influence taking place in behavior theory on a number of different fronts. There is increasing interest in the application of behavior principles to practical problems. We see this in such things as the tremendous upsurge of interest in teaching machines, training people in signal detection, and in behavioral engineering of patient behavior in various institutions. In the next decade, there is going to be a replacement of a lot of applied psychologists by others who have a background in and are oriented to behavior principles. The time is ripe.

Approaches to Rehabilitation Research

—There is a good start in *Analysis of Research Needs* and in *Psychology and Rehabilitation*. Our recommendations should tie in with those.

—Emphasize study sections and peer evaluation of proposals.

—And research fellowships, predoctoral, postdoctoral, and faculty.

—Evaluate the person rather than his proposal. Try him out. If he does good work give him more support.

—Forget the idealized conceptions of research, the cookbooks, and stereotypes, and encourage research that is frankly exploratory or descriptive.

—The chances are that all of the research that constitutes an application of behavioral concepts to the rehabilitation field will involve exploratory fiddling around and searching for the best ways to bring about some change.

—All of us do the same thing in research. We nose around with a certain bag of ideas that we carry as part of our permanent equipment. I don't think you are going to get good thinking about possible behavior-theory relevancy to rehabilitation and get this kind of thinking infused into the rehabilitation problem until after an initial very informal exploratory phase.

—Neither people who know only learning theory nor people who know only rehabilitation are likely to achieve real insights. You have to have the combination of conceptual structure and experience. How is it that one applies learning theory? I think it is fundamentally either watching the rats—putting yourself in a rat's position temporarily, not to prove something, but to get ideas about what might be going on—or watching kids to get some ideas—and always translating up from the real world into your constructs—and suddenly you begin to see new things because of the constructs. But you don't see how the constructs tie in with the phenomena until you have a real feeling and familiarity with the phenomena. If behavior theory is going to be useful in rehabilitation, there has to be the kind of support that will allow the people who have the constructs available to obtain the knowledge, contact, interest, and a real sensitivity to the rehabilitation experience. You use this as a guide to good ideas, insights, and hunches as to what is going on. Then you try to tie it down experimentally, but don't stifle people with requirements for these tight little research designs.

—We have the beginning of a consensus here, a tactical consensus. Subsidize some bright young fellows who have a good background in learning theory and rub their noses in these rehabilitation problems in facilities where they can come face to face with the behavioral problems involved. I don't think of myself as an applied psychologist, much less

a rehabilitation psychologist, but I have bumped into this problem a little bit. We were in charge of a cottage at a children's center where many kids were bedwetters. You know what came out of this. We developed a device for controlling bedwetting that is now a kind of minor aspect of our culture. This is the kind of application of theory that we are talking about and idealizing. Here was a problem that existed for years, and here were people who had been in institutional and clinical work for goodness knows how long, and they were just not rubbing the right two sticks together. Some basic concepts and principles that would lead to practical problem solving were unknown to them.

—Bring the professors in, too. If a professor was doing some research in rehabilitation and it was considered prestigeful to be a good behavioral engineer, to be able to solve practical problems with your principles, it would attract good men to this field.

—Some students are driven toward university respectability, and applied work is actually spoken of by some as a weakness. We need some sanctioning system. Maybe $5,000 a year for a few years for a new man in a department to work half time on rehabilitation problems. He would be in the department and on the ladder of normal academic expectancies but also do the other work. It would enable a department to expand in a new direction at small cost. Many psychologists could get the exposure that we are talking about and it might slant their subsequent research.

—There might be some interest by senior people, too, in summer appointments. If you could get them to expose themselves to a rehabilitation setting, even for a short time, working with patients, observing procedures, and absorbing the atmosphere, they might get methodological or procedural insights that people haven't noticed before. Let's say he's a guy—and we could name many—who has tremendous insights into things. Let him be at very good pay for half time during a summer. Out of the filtering up of people, there is likely to be more gain per unit of time and investment with senior psychologists if you can get them to accept. The long working out of the research would not be their problem, but they could facilitate it. If you once get them doing the job with enough of a plum for the summer, they are all people who will work hard and become intrigued with it. This would help a great deal.

—Now complement that with the other side of it. Have him instruct the clinic or hospital staff in behavior theory while he is there.

—This would be very good. The really creative things will come from a learning person acquiring some new interests in the field of rehabilita-

tion or from a rehabilitation person acquiring some new concepts from the field of learning.

LEARNING

—Learning is not really learning theory any more, but behavior theory. It is not merely learning instrumental acts like operating a prosthetic device or the acquisition of meanings and significances. Behavior is a constant process of learning and unlearning, and behavior theory is concerned with all of the variables that are involved in the maintenance of behavior.

—There are many varieties of behavior theory whose models range from the relatively simple to the extremely complex, and they differ also in scope and generality. As a group, however, they are all explanatory and predictive theories as contrasted to some others that are merely descriptive. General theories of human behavior attempt to account for all behavior. Problems of sensory-motor skills, motivation, attitude, interpersonal relations, and social relations, when translated into behavioral concepts, are all grist for the same mill.

—One way of operating in any new field is to look first at a general theoretical framework, and use it to derive the kinds of problems that must be interpreted. Preferably, start with the most general, the most inclusive, model so that you leave out nothing or as little as possible. Phenomena that will be in the simpler model will also be included in the more complex model.

—Looking at the situation in another way, we all have a common background in terms of learning principles, and we agree that they have general applicability. If we examine some of the problems in this field we will see that some of our principles apply to them. Why not take those principles that apply and see what can be done with them in rehabilitation?

—The problem of rehabilitation often consists of a disabled person who, in his own eyes or in the eyes of his rehabilitation counselor, should be doing something other or something more than he is doing. The disabled person apparently has the capacity to do this "something" if he is "motivated," as the rehab people say, but often he isn't; that is, he doesn't engage in the desired behavior. How can a person be stimulated and paced so that he does what he "should" do and "wants" to do it? Generally, the problem consists of people who used to do certain things well, but they are not doing them anymore. Some problems may involve "new acquisition" of motor skills and other behavior; some may involve "re-

learning" of old performances; and some may involve "unlearning" of defective or inadequate behaviors. Perhaps some of these problems can be examined in terms of operant reinforcement.

—That procedure limits the isolation of problems to those that the principles can handle. The kinds of problems that are seen and the kinds of experiments and observations that are set up are frequently a function of the model. If the model is too simple, there may be many additional problems and whole classes of relevant behavioral phenomena in rehabilitation that will never even be perceived because the model has no room for them.

—Perhaps so, but all problems do not have to be encompassed at the outset. A start can be made with principles that are less than comprehensive and perhaps even wrong. We don't expect that engineers had a fully adequate set of principles when they first began to build bridges. Many bridges were built, and they crashed, and the engineer learned from his experiences. It is not clear that a particular approach to behavior must enter the applied area with a completely adequate model.

—All models have limitations but some may be more adequate than others. This will be discovered when application is attempted. Rehabilitation problems can be conceptualized in one-stage, two-stage, and multistage learning models. If a particular model is inadequate the application will be unsuccessful. It will meet with failure, and its advocates will have to revise their principles. But this is no reason not to attempt the application. Perhaps rehabilitation activities guided by *any* learning model would achieve results superior to those that are obtained now.

—A simple model may be successful because it tackles only simple phenomena and does not try to handle more complex problems. If it cannot handle mediated generalization—semantic generalization—for example, it is not an adequate theory. The only argument here is that we don't want to present to people the notion that we view behavior as just a bunch of responses, and that strengthening, weakening, and shaping some responses is all it is. Some of us couldn't go along with that.

—Yet, rehabilitation does seem to lend itself to the exploitation of about five major heavy-weight principles: reinforcement, extinction, discrimination, generalization, and counterconditioning of incompatible responses. There are effective behavioral methods, well known to psychologists for many years, that are straightforward applications of these principles. Some reports are already in the literature showing the success of these methods and these principles in the study and treatment of indi-

viduals who are mentally retarded, autistic, deaf, psychotic, neurotic, and speech defective, and everyone here has given additional personal and professional examples of their use. These behavioral approaches seem not to be used by rehabilitation counselors and therapists, and it may be helpful to communicate them.

If the learning group has anything to offer to the field of rehabilitation, it is a strong statement that behavior is a function of environmental variables which can be manipulated and utilized. The layman's view that behavior is internally controlled and mediated by verbalized understanding is probably badly in need of correction or supplementation.

Many problems in rehabilitation seem to stem from attempts to change people's behavior by telling or explaining something to them rather than altering the reinforcing environment. If the person doesn't understand, it is thought that the behavior can't be changed. If he does understand, then he should do what is requested of him, and therapists are puzzled when the appropriate behavior is not forthcoming. They appear not to know that many complex performances can be accomplished by people who may not understand what they are doing in the sense of being able to verbalize those performances or the reasons for their own behavior. Needless failure in rehabilitation occurs when a person is said to be too unmotivated, too stupid, too stubborn, or too psychotic to behave in a desired way. Many behavioral deficits are not under obvious control, and many cannot be controlled verbally.

—We had mentally retarded children working at a task that from the point of view of the adult layman was very complicated. The parents and teachers of the children claimed immediately that the "judgments" required of pulling one lever in the presence of one stimulus and another lever in the presence of another stimulus were much too complicated a task because the children would never "understand" what they were supposed to do. You know, of course, that rats and pigeons can perform this task, and there was no reason to suppose that children, who were reinforceable, even severely retarded ones, could not.

—The average pigeon probably has an IQ of about 130, don't you think?

—You never want to disparage pigeons!

—One parent was certain from personal experience that her child was functioning at much too low a level to master this task, but it appeared that he did operate a record player. He could open the latches, lift the lid, put the record on, start the motor, lower the pickup precisely, and

turn the volume controls and other buttons. If you point that out the parent will say, "Oh, yes, but he *likes* that," or something equally inconsistent. These inadequate commonsense observations of behavioral deficits may be prevalent in the rehabilitation field. Emphasis on more mechanistic kinds of learning that can be obtained by following behavioral principles might be rewarding.

—Do you want to get changes in behavior without understanding or comprehension? How long does this last? How far is it generalized outside of the experimental situation? You can get apparent changes in behavior, that appear like simple S-R changes, by manipulating environmental stimuli and getting different responses, but what is really happening is a change in the significance of the cues.

—Whichever it is, the process is under the control of mechanistic, automatic principles, and the layman doesn't see this. I might try to shape up behavior directly. You might set about to change a person's attitudes, but in neither case would we consider that the change is a function of the person's own control. The variables are just manipulated in different ways. Some kinds of problems may call for response shaping and others for changing significances without touching the instrumental acts. Both procedures are markedly different from the personality and motivation approaches to behavior.

—In learning theory the organism is viewed as a rather complicated machine functioning according to automatic, mechanistic determinants. Once you know the principles, the machine can be operated in various ways.

—By whom?

—By whomever happened to be defining the goals. For our present purposes, it is the rehabilitation worker who says the plan for this paraplegic, for example, is to get him on his feet, strengthen his shoulder muscles, teach him a trade, harden him to work, and see that he is placed in productive employment so that he can be economically self-supporting. Of course these goals are under the control of other variables that can be manipulated, too, but that's a higher level problem. Here we are not trying to do anything more than the rehabilitation worker is already trying to do. He tries as hard as he can to influence and motivate the disabled person to behave in ways that some specialists, the culture, and commonsense say are "good" ways. The rehabilitation worker is not as successful in his task as he might be. Behavioral research, and training of rehabilitation personnel in behavioral methods, would certainly help him do his

job more effectively. It is not our task here to determine if the goals of the rehabilitation worker or the culture are good ones, but just to demonstrate how the machine functions.

—I'm as deterministic as anybody, I suppose, but I don't now let myself in for a kind of simple-minded determinism that may be misleading. The determinism that I now believe in has a lot of complexity in it. If someone stimulates me, I may or may not react—not because I don't obey universal principles but because I'm a complex machine. Many things must be taken into consideration, and the consideration must be discerning.

—The basic question, then, is the kind of the conveyance in which we ride. If we go riding off into the field of rehabilitation in a kiddie-car learning theory model, it may be seen by some that the conveyance is inadequate.

Learning, even in the rat and the pigeon probably, simply is not completely ordered to single-stage S-R principles. The principles are not wrong, but insufficient. Except under special conditions where you force behavior into the simplest model possible, even the behavior of the rat— say in a city dump—is not as simple as this.

If people say that a person behaves in a certain way because he doesn't understand or because he is stupid, an adequate learning theory eventually may say, "Yes, the layman is right." Maybe the kind of language he uses and his interpretation is wrong, but there are such things as misunderstanding. There are such things as interpretations, significances of the situation, and significances of effects. A person—especially a disabled adult—doesn't have to learn a completely new set of responses for his disability situation. He has already got most of these available responses. It is a matter of changing the significance of the situation.

—A multi-stage model of learning is more satisfactory for dealing with many complex behaviors. Perhaps, however, there are times when a one-stage model is quite adequate. Many times greater success may be gained by starting from the overt behavior in which you are interested and using the techniques of shaping to produce field behaviors without attending to the mediators.

—That may be an illusion. If a more general and complicated theory of learning is correct, the functional relationships described by it are always operating. You cannot turn the principles on and off like water faucets or just pay attention to behavior that interests you.

—The illusion of operant conditioning may develop because under spe-

cial conditions you can get a person to behave in a certain way, very regularly and often. Because this behavior may fit a simple model does not mean necessarily that the model is an adequate one. Any behavior that fits the simpler model will also fit the more complex model.

—Yes, that is true. On the other hand, just as a physicist may find Newtonian physics more appropriate for a particular problem than Einsteinian physics, a psychologist in a particular learning situation may apply a single principle with great success.

—Different theories of learning may be appropriate models for different problems. In general, there seems to be agreement that the behavioral problems of rehabilitation can be conceptualized within the framework of behavior theory as problems of maintaining behavior by learning, unlearning, and relearning. A deterministic view of human behavior should lead psychologists in rehabilitation to look for causal, manipulable variables in a situation which they would then use to facilitate the generally accepted goals of rehabilitation workers.

It is believed that improved training techniques could be devised on the basis of behavioral principles that could facilitate the learning of a wide range of behaviors, important in the rehabilitation process, from skilled motor acts to improved work habits.

The disagreements that have arisen relate mainly to the kind and luxury in details of the theoretical conveyance that is desired. How complicated. . . .

Multi-Stage Model[4]

—I want to use a two-stage model here because it is going to be necessary to talk about two quite different—not *kinds* of learning—but loci of learning, loci of modification. We can talk about habit family hierarchies in both loci—what I call decoding or encoding processes. Both processes are going to be involved in the conceptualizations of habilitation, dishabilitation, and rehabilitation learnings. In keeping with the idea of rehabilitation for disability incurred after some degree of normal development, which is considered as a variable, let us say that we have an indi-

[4] This excerpt from a discussion that was well illustrated with diagrams and paradigms hardly does justice to the elegance of the theory described, but it may be sufficient to indicate the applicability of it to rehabilitation problems. For example, one of the levels at which habilitation, dishabilitation, and rehabilitation might be studied would be semantic decoding, or the changes in significance of critical signs and of concepts, as a function of these stages in any kind of disability. It is a fairly obvious procedure. Just some straight application is required.
For a fuller statement of the theory, see Osgood (1957).

vidual who at a certain point in time already has *sets* of decoding and encoding habits. I will indicate the two-stage nature of this by using my own symbols, and I won't bother to go into the derivation of mediation mechanisms, i.e., how these anticipatory representational responses, signifying responses, are developed.

We start with an individual who, in a schematic sense, has already learned many sets of habits that he brings to the situation in which we pick him up prior to any disability. He holds extremely complicated sets of decoding habits. He has learned the significance of people's faces, of mother and father, of his job, of his own body, meanings of his hands, of his own facial structure, etc. This is very schematized. You have this individual who has all of this system of meanings of all kinds of signs, of stimuli which have become signs by virtue of having become associated with representational processes and which are based ultimately upon his own overt behaviors being reinforced. I won't go into details—I think all of us here know about it.

He also brings to a situation a very complex set of instrumental behaviors. He has learned that when he is afraid he runs. When he is hungry, he says, "I am hungry," or he turns toward restaurants. He has learned the significance of signs that say hamburger or restaurant. He has learned how to behave: walking locomotion, turning door knobs, all instrumental speech skills, etc. Now, I am not trying to include here the details of perceptual organization of signs which result in lowering thresholds and so on. This is what I call *sensory integration* or the formation of very rapidly executable skills, as in manipulation and speech mechanisms, which I will talk about as *motor integration*. But, I am just assuming that this is not our main problem, although it will become very important in particular types of disability.

Now let's assume, then, that a person at the time you pick him up has this elaborate system of already learned ways of decoding skills, significances, and instrumental skills.

—Is this similar to the internalization of experience or the establishment of a kind of isomorphism between the real world and what is on the inside? Would you accept that?

—Except that there are three quite different ways in which the nervous system mirrors the world.

—Of course, there is the possibility that these rm's to certain stimuli may be established, for example, on a language basis, in which case they may not be isomorphic with what occurs in the objective world. Some of

these meanings or some of these rm's could be established in other ways: you can be deceived, you can have illusions, so isomorphism is not letter perfect.

—Let me say something about these three "mirrors." It seems to me the nervous system essentially has three kinds of mirrors of reality. I have not shown it here, but in "the monster," the general model, at the projection level, both in output or *motor projection* and in input or *receptive projection,* you have an unmodifiable (by experience) isomorphic mirror up through the primary projection systems: a faithful representation of your ongoing behavior, your directly antecedent activities, and your subsequent activities, representing a faithful mirror of what is really happening out here now. You have got to have this; otherwise, you can never correct in terms of error signals. If these projective relations could be relearned or changed by experience, you would never have a way of checking errors, illusions, etc.

—I am not sure about that.

—Then you also have what I mentioned as *sensory integration,* involving regions beyond the projection areas which are no longer isomorphic. On the motor side, in the formation of motor skills, you have *motor integration*. Here you have a different kind of mirror—a mirror based on the redundancies of one's own past experience. So you get patterns of organization which reflect, on the input side, past redundancies of inputs and that tend to complete themselves and form wholes. Despite rapid scanning, we see faces, we see clocks, not conglomerations of stimuli. On the output side, the motor skills become organized on the basis of past redundancies or regularities in one's own behavior.

—Let me ask for clarification. Would you identify this with the old concept of re-integration as Hollingworth introduced it: we react to a part subsequently as if it were the whole?

—In part, yes. Missing data are supplied centrally on the basis of past redundancies. Then, the third mirror is the one that reflects the outcomes of behavior. This ties up, I think, with the whole business on the non-specific projective system—that is, the way in which the organism represents or mirrors past experiences, not sensory or motor per se, but of relations between the organism's behaviors and outcomes—emotions, motivations, drives, purposes—in other words, the *significance* of behavior.

Let us assume, for example, that a human organism comes to a certain point in time with all of these elaborately developed hierarchies. A particular sign may have a whole hierarchy of alternative significances, some

of which are much more probable than others. Let's take signs of danger—at a young age it learned to cry and was reinforced for crying. At an older age it learned a different alternative which is perhaps running to mother rather than crying. At still another stage it learned more adult behavior. This is a building up of hierarchies. One problem is, I think, to what extent in disability—in the physical disability situation and dishabilitation—do you have regression occurring? To what extent could you demonstrate that there is actual behavioral regression, either in the significances of things or in instrumental behavior as part of the dishabilitation learning?

—It may be that the reinforcement of new behavior makes the repertoire or habit family a little more complex than it was. In other words, in a hospital situation, a new type of response may be reinforced.

—As part of the dishabilitation learning? Consider as a special case a person who has a certain kind of injury like certain brain injuries. You may have real problems of redeveloping sensory integrations, visual integrations, auditory integrations in new areas. It may be much of the aphasia problem. Similarly, and particularly in the physical disabilities on the encoding side, you may have problems of redeveloping actual capacity to make certain speech combinations, and much of what we think we know about the basic principles here—the frequency, the rapidity of execution—become very important in these things.

—It seems to me that you can think of two main loci of behavioral modification. One is a *shift in significance:* here the particular sign—one's face, one's own hands, one's face in the mirror—changes its meaning. This is the body-image kind of problem. It is also the meaning that is associated with a task—to get up out of bed, to go to the toilet, or whatever it may be. One of the changes that may occur may be a change in significance where something that was pleasure-inducing, with a gratifying outcome significance, now shifts to a threat or danger-inducing, anxiety-inducing significance. Now remember this person has already learned various behaviors to any signs of anxiety or personal threat. The suggestion is that he is likely then, if you can show the shift in significance, to display behaviors, assuming that he is capable of them, which are appropriate to the new significance without new learning, but as a transfer. That is one type of modification. Let's call it a decoding modification or a change in significance.

The other type is a shift in instrumentation. The situation has the same significance, but the act is not possible. This seems particularly relevant

in physical disability. Being hungry, let us say, the sight of a hamburger or whatever it is over on the table still has the same significance to a paralyzed man as it did before. Whereas the man would normally just pop up and make a grabbing movement, he cannot do this when he is paralyzed. So you may get then another locus of modification, a change in instrumentation. You may get all kinds of shifts in instrumentation. These may be regressions or shifts to old behaviors already learned. The disabled person may learn differently but still within an already existing repertoire. He may have to develop new skills or new alternatives on the encoding side of behavior.

I don't know anything about the details here. This is where you've got to rub the noses of people like us in the phenomena. It is one thing to talk in general; it is another thing to get out and see what happens.

With this in mind, let us indicate, then, three general levels of this thing. It is time-sequence dimension. We have *habilitation*—that's original learning prior to the interference we call disability. Then we have *dishabilitation*, which is learning to be disabled. And finally we have *rehabilitation*, or learning to be better able.

—Actually, would not dishabilitation include both having learnings taken away and also establishing new ones?

—It could be both.

—Let's get this down. One behavioral loss which implies not a learning phenomenon, but results from nervous system, sensory losses.

—Yes, he can no longer move his fingers, so the response of clasping a doorknob is out—not because he has unlearned it—just because it is no longer an organ that can do this sort of thing. Then you'd have "interference learning." Tie it in with the transfer-interference kind of problem. He would have new learning actually as a function of new reward circumstances and the image he has of illness. There are all kinds of problems that you can put into this model as you start thinking about the image the person comes in with and the meaning that he has for paralysis.

—Behavioral disruption, you might say there, as opposed to behavior loss. Isn't disruption the thing we want to catch there—in the second one of those?

—No. Both would be disruptions.

—You see, what I worry about is what is going to be rehabilitation then.

—I think that one will be independent of the other in a sense. Then it can be either a relearning of new skills or it can be a shift to other previously lower alternatives in the hierarchy. This can happen spontaneously. If you observed "rehabilitation" carefully, you would find that much of the person's rehabilitation is spontaneous in the sense that he shifts himself to new alternatives. And this may be one of the interesting things to see. Ask yourself, now, what are the alternatives left within his hierarchies of getting objects? Let's put it in a broad global sense, not locomotion, but a person getting desired objects. Well, now, he already has a whole system of ways he has done this. When he has been busy working at a desk and someone else is around, he says, "Hey, will you bring me that ruler?" Language or communication is one of the alternatives in his hierarchy of getting objects—not just walking over. Now the question is, if his significance of the disability with its social implications (which I think is tied up with a shift in meaning side) is such, certain of these alternatives which are available and would work are not used because of the significance of the disability. The meaning of talking, asking somebody to bring something to him, which is available to him in his hierarchy, may be inhibited.

—I sort of like the idea of habit and habilitate being original learning, learning of a whole system of behaviors; dishabilitation as either loss without learning, interference learning, or learning different alternatives because of disability. And then finally rehabilitation would presumably be learning of new instrumentations—learning new skills, shifting to other alternatives that already exist in the hierarchy of alternatives of instrumentation—and also learning new significances which may be "good" to learn. It may be "good" to learn the original significances which the person has lost—self-esteem, the meaning of the self—or it may be the wrong thing for him to retain the same meanings for competition and have the same aspirations as he had before. He may have to learn different meanings. So you get the same problem of either learning by going back, relearning old significances to signs that he had, or learning new significances but different ones than were involved in dishabilitation learning. That's the general picture.

—I would agree. My feeling is that if we then take this as a sort of bare model—the abstract model—

—The barest.

—Then we ought to fill this in, in terms of behavior principles, that

is, reinforcement, extinction, generalization, transfer—and adequately illustrate them by examples in some of the fields so that we can indicate where these principles are involved.

—Now, I am assuming here the basic principles of single-stage learning. All you have here is two sets of habits, two sets of habitual S-R connections: one the decoding set and the other the encoding set. The same basic principles of learning are assumed to apply to both.

—I think though we will have a lot of filling in to do, for example, in terms of reinforcement as a particular item. This is one of the principles involved in learning behavior, maintaining behavior, and changing behavior, and we must recognize that the ordinary process of reinforcement may be seriously disturbed after a person becomes disabled. For example the individual who becomes chronically ill, or through some type of physical injury or disability enters the hospital, has a marked change in his system of reinforcement. Many learned social and primary reinforcers are withdrawn, and the main task may come to be a consideration of a way of reinstituting a system of reinforcers so that desired types of behaviors can be shaped up.

—And, the very nature of the reinforcers may influence selection among the available hierarchies.

—And, this may come down to be a problem of the consideration of the reinforcers which are available and the ways in which these reinforcers can be applied. For example, you have the problem in disability that the original learning of motor skills many times takes place in early childhood when you have immediate and direct reinforcers applied by the parents in terms of primary reinforcers and very strong social reinforcers. These you do not have later on when the individual is in the hospital. All of these sources of reinforcement are withdrawn and then you have new problems in that area. That is what I mean when I say we have to fill in.

—The first problem might be to ask ourselves about the nature of original habilitation. For example, can the person learn certain flexibilty in shifting from one alternative to another. Is he flexible in changing significances? Could you show that some people become dishabilitated more easily? Maybe the guys who are rock-ribbed in the sense that they are very inflexible in habit systems are the ones who survive dishabilitation best, but have the greatest trouble in any rehabilitation which is required by actual behavioral loss.

—In considering such problems as that, we are again getting back to the behavioral principles such as schedules of reinforcement.

—This is what I meant when I said that I think that the Skinnerian system is pretty easily includable in this. This just gives it a degree of flexibility or includes more.

—To conceptualize things in a two-stage model, to use a lot of terms from the field of communication and to talk about things in terms of sign learning and significance learning and instrumental acts, and the like, seems to me to impose a considerable limitation on the field of behavior and the possible contribution that we can make. We might be better off to address ourselves to much broader principles: not to try at the outset to adopt a model and see where we can fit the problems of rehabilitation into it but, rather, to look over a number of problems of rehabilitation and try to classify the field on that ground. The two-stage model almost forces us to adopt distinctions between sign learning, instrumental learning, and the like, which may be greatly oversimplified in terms of two stages. As we agreed yesterday, there are many stages. To adopt a two-stage model, or an any-stage model is to accept a particular and somewhat limiting framework.

—To adopt a model, which is by no means the only way of conceptualizing these events, may burden the rehabilitation psychologist with a set of terminologies that are perhaps not the simplest ones that can be developed. It might be better to try to survey roughly the types of problems which face the person who has been injured, and see if we can classify them. If a two-stage model emerges as a useful way of classifying the problems, that would be all right. What has been described up to now, however, is a system whereby we accept the model, then select problems for illustration to suit our purposes. If one is looking for it, one can find many examples of sign learning distinguishable from instrumental learning, and so forth.

—That type of looking, however, seems less valuable from the point of view of the rehabilitation field than simply to start with some of the kinds of problems—first talking about the applied field a little bit and then gradually trying to emerge or to generalize or to distill a set of principles which seem to us to be the most relevant. It may well be that some aspects of behavior theory are not particularly relevant to this area, that the main problem can be subsumed under a relatively small number of principles, just as the field of aerodynamics does not involve all of the as-

pects of physics, but a limited set of aspects. If we were going to do aerodynamics, I would prefer to do a little bit of looking at the wind tunnel first before formulating the model.

Reinforcement Principles

—From a practical viewpoint there seem to be a great many situations in rehabilitation right now where the problem is to get the client to do something. Both intrinsic and extrinsic reinforcers are being used, but used poorly. They are noncontingent; they are not on the right schedule; or they are contingent on the wrong things.

—Contingent reinforcement, for example, may not be used. At a "work-hardening" clinic in a rehabilitation center where they pay disabled persons to get them used to working again and toughen them up I asked, "are you going to give the money contingent on some amount of work?" They explained that they were paying by the hour. To pay by the hour simply pays the clients for being present. What the clinic desires is to engage these people in increasingly strenuous muscular activities for increasing lengths of time so as to instill or restore effective working behavior and working attitudes. Couldn't they do that better by paying the people contingent upon improving on certain measures of stamina or accomplishing certain tasks?

As it is, the supervisors become "straw bosses" who must use constant aversive controls in correcting, warning, threatening, and urging their charges to do more and better work. Since there are never enough supervisors, it is not surprising that there is much "unmotivated" goofing-off behavior. Everyone is paid at the end of the day no matter what he has done, so obviously the reinforcement is in no way contingent upon the client's behavior.

One recent study pins this down clearly. It showed that if you try to get people to turn a very heavy wheel for the purpose of exercise, if you instruct them to work as hard as they can and give them a two-minute rest after every minute of work, you find that the heavy wheel is turned a certain number of times. The subjects quickly work up a big sweat, claim they're exhausted, and stop. A record was kept of the average number of turns that were made by each subject during the one-minute trial. Let's say for one subject it was 85 turns. The next day the investigator said we want you to turn the wheel 85 times on each trial, and then you will get a two-minute rest period. The results showed there was now about 150% more output. This has obvious and simple implications in

rehabilitation for physical fitness: rest periods should not be contingent upon time but upon behavior. That is a principle that few therapists seem to observe. Although a lot of them have a common-sense feeling for it, they probably don't undertake the training in this kind of deliberate manner. It would be interesting to know how often a simple principle like this is used or violated in rehabilitation settings.

—It sounds to me as if the behavior is also contingent upon the symbols, the signs, of correct behavior.

—It is tied in, too, with the principle of immediate reinforcement which is also violated when there is no contingency. If pay in the workshop situation were contingent upon doing certain discrete tasks, it would be better to pay the people a little bit immediately after they completed each task.

—Shaping comes in here, too. Many tasks and actions necessary in the rehabilitation process are difficult to learn or relearn. A completely right response usually is rare and unlikely to occur initially. Instead of zeroing in bit by bit, though, until the behavior becomes acceptable, the person may get much more extinction than reinforcement. The chances of this being an unlearning experience and a threat experience are very high. Just the simple idea that when one is dealing with motor skills or sensory discriminations, for example, it is very important to have immediate reinforcement for proximation would bear emphasis.

—There are undoubtedly many skilled therapists who intuitively make use of shaping and other techniques, but there would be advantages for them, and for others who are not so intuitive, in showing explicitly the advantages of knowing and using the principles of clear-cut positive reinforcers. It could well be emphasized.

—We have to voice some correction to this immediate reinforcement suggestion because in some learning situations we want people to be responsive to delayed reinforcement.

—Yes, principles cannot be applied without understanding. Sometimes one must zero out to sort of capture the behavior first and gradually bring it under more precise control. However, in sensory-motor integrations and learning new skills on the perceptual-motor side, it is desirable to zero in. The immediate reinforcement presumably maximizes the rapid and effective learning of the discriminations involved.

—Immediate, positive reinforcement is missing from remedial work with children, too. The idea of giving a child something good for engaging in certain behavior is not only uncommon but also disapproved of.

He is supposed to learn to do things because he "wants to." People are supposed to learn because of intrinsic reinforcers, not extrinsic ones.

One school seems to understand in a very vague way that the teaching situation must be reinforcing. In their remedial classes for reading impairment they work in a lot of reinforcing situations. The children dance and play during many breaks and recesses, but the reinforcement is never contingent on the behavior they want to shape up. They condition positive attitudes to the general situation, but the skill sequences are not affected. Both are important, of course, but if they understood reinforcement principles they could make better use of their reinforcers.

—It is probably the same way in many rehabilitation situations. The therapists probably try to introduce a great deal of positive reinforcement in the situation and make it a happy experience, but they don't make it contingent upon the behavior they want to produce. At a school for the deaf, for example, I'm sure the teachers try to establish a positive significance to the place which, of course, has some important consequences. Recesses and other reinforcing situations are programed frequently, but I'll bet you that permission to play is time-scheduled and not made contingent on completing a task. This is a waste. It is throwing away part of the effectiveness of the natural reinforcers that are available.

—You may find a great deal of resistance to the deliberate use of reinforcement—and particularly extrinsic reinforcers—in retraining people. Perhaps some people are adequately controlled from within, but others— most of us, probably—are more responsive to extrinsic social and material reinforcement.

—Handicapped people who don't do what they should do are disapproved of, criticized, analyzed, and maybe psychotherapized, but it is not clear that this facilitates their rehabilitation. Extrinsic reinforcers may be better and more economical in the long run.

—I wonder what the potentialities are for the systematic introduction of reinforcers into the rehabilitation situation, especially extrinsic reinforcers? Could they be introduced, for example, in prosthetics training or any rehabilitation activity, in such a way that the reinforcers were contingent upon the type of behavior that was wanted?

—It shouldn't be too difficult in principle since we already pay people to labor in workshops where they may be paid more than the actual value of their production.

—It has been pointed out by many that compensation for an injury— whether it is money or increased care and affection for the disabled per-

son—which is given only so long as the disability continues to exist simply reinforces disability behavior. The same total amount of reinforcement made contingent upon specific behaviors leading to the acquisition of new skills and attitudes would do an infinitely greater amount of good.

—We might point out that in rehabilitation often a new learning task has to be mastered which in its original learning was heavily reinforced by the parents and the family group. Then at a later day because of an accident or disease, learning is again required, but the reinforcers that were originally associated with it are no longer present. When a child first learns to walk there is a great deal of heavy social reinforcement, individually applied by both parents, which shapes up the behavior.

—There are more than social reinforcers in the original learning. When a child first walks or talks, they are primary reinforcers, too. These sources of reinforcement are not available to the adult.

—Particularly if he gets around with less effort in a wheel chair.

—Not only that, but the child gets natural reinforcement by getting to objects more rapidly. The adult learning to walk again gets around more slowly than he did before and this source of reinforcement is cut off.

—I have two reactions. One is that adult relearning of skills is more difficult. There is a kind of automatic reinforcement at certain ages. Learning of language is infinitely easier up to about eight years of age. Beyond eight and in the adult it is much more difficult. Walking, too, may have a critical period. Similarly, when a child is first able to make a pincer movement with his fingers, he does this all over the place. There's a kind of automatically reinforcing feedback gratification operating in the formation of skilled activities in the original learning which may not occur in the adult. This is reaching, but I think there is something here.

—I'm not sure that it can't be discussed in terms of habit formation.

—In any case, even if the actions are learned and functions of environmental variables, the reinforcing conditions are not duplicated for the adult.

—On the other hand, an adult has so many other powerful sources of reinforcement—such as getting approval from others for being witty—which may be more strongly reinforcing than grabbing a new object by himself.

—An adult may feel that to make a pinching movement is nothing. It doesn't have the thrill of a first performance. It's as if there were an

almost automatic reinforcing mechanism at the formation of a skilled perceptual or motor integration contingent upon the skill integration itself and apart from secondary reinforcement. It may tie in with imprinting or with critical stages of development.

—It may, but those are things that we presently can't control. An analysis in terms of learning principles is equally plausible. A child has many reinforcing but inaccessible objects around him. When the pincer response appears many of these reinforcing objects can be grasped by the movement. The child, therefore, finds it reinforcing to repeat this action.

—On both grounds—or either—we can agree that it is infinitely more difficult for the adult to learn perceptual and motor skills.

—Now you have a problem. Two potent reinforcers that exist for the child may be diminished or absent for the adult. The mild reinforcement that a person obtains in relearning a skill seems not to compare with the strong reinforcers of the original learning.

—Right. The child who learns to pick up something gets a lot of satisfaction out of it. The reinforcers available to the adult who must relearn the task may be very pale by comparison in spite of the logical arguments about how much better he will be if he exerts himself to relearn.

—An important problem has been isolated. Rehabilitation people would call it a motivational problem. It is central to the whole rehabilitation process and to the contribution that psychologists can make, for it crops up in numerous ways at every stage of adjustment to disability and in every disability group. It is clearly a behavioral problem with which the psychologist, who is supposed to be an expert in influencing or controlling behavior, should be able to cope. I am not sure, however, that our record here is very good. The relative poverty of psychology's present contribution to the rehabilitation process is a matter of some concern for rehabilitation psychologists and others. Surely the contrast between the general principles of behavior that are presently known to psychologists and their application in rehabilitation is striking.

Some responsible people in the field of rehabilitation have advocated the employment of practical vocational counselors who will go out and place disabled individuals in the community, and they have warned against employing psychologists who want to do only testing and psychotherapy. Whether tested and therapized patients reach a higher level of adjustment and stay rehabilitated longer than others is an empirical question. There is no confirming evidence for this that I know of.

Similarly, some representatives of other professions have questioned

the need for psychologists in rehabilitation. As one of my colleagues in another field said, "Each profession represented in rehabilitation has a reasonably well-structured, operationally defined role—except psychology. The psychologist understands the patient, but it is not clear what function that serves. If you ask him to help change certain behavior that is impeding the patient's progress or to facilitate some behavior that will speed the patient's recovery, he does one of three things: 1. He declines outright on the grounds that it is the patient's responsbility to make such decisions, not his. 2. He gives you a long song and dance about the patient's premorbid personality, and how it is 'understandable' that he behaves as he does. 3. He offers an involved theoretical explanation of personality dynamics that sort of trails off into 'that's the kind of person he is, so what can I do?' "

For example, an amputee was making life difficult for the staff of a rehabilitation center by his surly and uncooperative behavior. The psychologist reported that he was a passive-dependent personality with strong death wishes. When the staff complained that a label wasn't helpful, the psychologist felt aggrieved. He had counseled the patient and knew that he had helped him a lot.

To be sure, some psychologists working in rehabilitation are pitifully armed. Often they have been trained in the clinical psychology of the institutionalized psychotic adult for activities that are of minor importance or not relevant in rehabilitation. For some, if you take away their W-B, TAT, and Rorschach, there is little to cover their functional nakedness. This situation, hopefully, will change as psychologists who enter the rehabilitation field become better equipped with tools and concepts that will enable them to cope with behavior as well as to describe it. Learning psychologists can help in this process.

It seems true that the reinforcers for inducing some kinds of learning in the adult are weak. In the practical problem situation, often the handicapped adult has never had certain skills or certain behaviors prior to disability, and he doesn't think he can learn them in his disabled state. Or he did have effective behaviors at one time and perceives the relearning as leading to less efficient behavior than he originally had. Leaving out those individuals who are "well-motivated," what can be done?

—Motivation in behavioral terms may be considered the task of specifying adequate reinforcers. Doing something is a function of the reinforcers in the situation. If an individual "should" do something or you want him to do something, you must provide strong reinforcers contingent

upon this behavior. The question to be asked always is, "what will be the appropriate reinforcers for this person?" What are the reinforcers that will shape up the behavior within the therapy situation and maintain the behavior in good strength outside of the therapy situation. It may be easier to look for a label or for a rational verbal explanation of the patient's psychological problems, or to try to explain to him why he should do what he doesn't want to do, but it is more effective to search for reinforcers that can alter "bad" behavior and maintain "good" behavior.

—The rehabilitation client may have some serious emotional problems, but they are not likely to go as deep as those you find in individuals institutionalized specifically because of emotional instability. When rehabilitation is aimed at overcoming the dishabilitation stage, concern with some of the more general aspects of the individual's personality or behavior may not be necessary. Major emphasis might well be placed on overcoming the verbal, physical, or attitudinal behaviors—such as complaints, inactivity, and dependency—which prevent rehabilitation.

—We are at a very interesting point where two whole levels of our discussions come together and fuse very nicely. We have agreed that there is a problem for the adult in learning almost primitive skills—a real problem in motivating and reinforcing. Now, almost all reinforcements for the adult are of the secondary, acquired kind. In my language this means the acquired significance—evaluative, reward, gratifying significance—of signs of things. Let's say, first, we need real reinforcements for the disabled adults, particularly in learning rather primitive skills, because the usual ones of the original learning by a child are missing. Second, in the adult the reinforcement is almost always secondary reinforcement. Money is in itself a secondary reinforcer—a sign of something else. If the significance of money changes, as it may in an institution, it may have little or no reinforcing value.

Verbal reinforcements such as saying "you will be able to be on your own" or "you will be independent," contingent upon certain behaviors, may have equally little reinforcing value because the meaning—the changes in the significance of certain critical concepts such as the change in the significance of being on one's own—may be threatening, worrisome, and productive of disturbances. Making specific statements about what might be strong, extrinsic secondary reinforcers for people in this situation, without having studied it carefully, is very dangerous. It is a good research problem.

—In other words, we would like to know what are the reward signifi-

cances, reinforcing significances, for people?[5] They may be different for different people, with different disabilities, in different institutions. So, preliminary to reinforcing learning skills, it would be desirable to investigate the signs that have secondary reinforcing value. You may be wrong in offering a man $50 or 5¢ for a correct response when in his institutional life money is nonreinforcing.

—By and large, money is a good reinforcer. What you point out are possible exceptions. Everyone will agree that money is not a reinforcer for everybody, but I would disagree about identifying this as an area for research because it may not be particularly useful. Each individual to some extent is going to be reinforced by different things. It is of small value to know that 60% of the people in a mental hospital are reinforceable with jelly beans, and 80% are reinforceable with money. Those who are not reinforceable with either jelly beans or money will be reinforceable with grounds passes, rest periods, or something else; and, of course, there may be 5% or more who are not reinforceable with anything. It is necessary to develop a repertoire of reinforcers and use whatever you can, and you can do it now.

In general, we can make a good point: when a rehabilitation client is reinforceable with money, and when it can be dispensed in a convenient way and made contingent on increasingly effective behavior, let's use money for those people. Some people are not reinforceable with money, under certain conditions or for a while. Food, passes, and privileges also can be presented contingent on the desired behavior. It is not clear that we need a sort of geographical atlas showing what reinforces a wide variety of human beings under a wide variety of circumstances. Judging from studies already made, an alert experimenter can find reinforcers in a situation that will be effective for many people there. The unreinforceable people who remain are a smaller group.

—Wouldn't you agree that much could be accomplished in rehabilitation institutions if they set up effective contingencies?

—Yes. The use of contingent reinforcers is important, but it would be helpful to know the characteristics of those that are effective. If we were sure of the strength of the reinforcers, it would make it easier to introduce the concept of extrinsic reinforcement in rehabilitation settings by showing how it could be used to shape up desired behavior.

—I'd like to become real clinical for a minute and say I have the feel-

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[6] Technically, of course, there is a vast difference between a reward and a reinforcer. A reinforcer, by operational definition, is always effective.

ing that we are very liable to rush in to treating people as if they were pigeons or rats.

—To hell with rats, but don't talk down pigeons!

—I mean this seriously. Let's remember that we are dealing with mature, sensitive human beings who still have personality, pride, etc. I'm not sure we can transfer readily our knowledge of the animal laboratory or child learning in determining what is reinforcing. It may backfire to assume that the same kind of things—like jelly beans for children—will work with handicapped adults.

—One of the main demands handicapped people have, I suspect, is self-esteem. It may be that money or jelly beans or a cigarette may work, but for reasons that may be overlooked. Receiving the reinforcer is just a sign of success, a symbol of the fact that they are doing something right, that they are getting your attention. It might be that just an encouraging smile, regularly used, would do just as well as a bag of trinkets. I would hate to see learning people go in and literally insult the personal integrity of people who are striving for a rebirth of their own self-image.

—I wonder if the early surgeons struggled with similar doubts. It is degrading, in a way, that a human being should be rendered helpless, his naked body sliced, and living tissue removed as if he were an animal; but sometimes it is necessary to restore health. Some things the psychologist does can be looked at in the same way. If as a result of his efforts disabled people acquire more adequate, socially approved behavior and live happier lives, that is a gain.

—Certainly. The problem is what are the really significant reinforcers for an adult person who has been severely disabled, and who now has to learn childish things again, perhaps while realizing that they *are* childish and primitive. What are the kinds of reinforcing situations, cues, and signs that will mean the right things to him? We are misled by the coins or jelly beans. That is not what the reinforcement is but merely the sign that is being given.

—It's often a two-pronged problem involving insignificant behavior and trivial rewards. Consider an able, active person who has had a CVA. When he takes two steps you give him nickles and praise. To the person the significance may be: "You mean I've come to this? I who used to play three sets of energetic tennis am being offered small coins to take two steps!"

—You are putting a different question. You're asking: What is the real significance of human experience or something like that? What are the

really important, meaningful things for people? That's certainly a useful question to ask and an interesting problem too. But even if we don't know the answers to that problem, we can still make effective behavioral use of a training situation.

—There are operational criteria for estimating the strength of a reinforcer and principles for using strong reinforcers to shape desired behavior. The actions are not different in kind or in emotional significance from what is already being done intuitively in many phases of rehabilitation; what is different is the clarity of the principles, the precision of the application, and the effectiveness of the outcome.

—Extrinsic reinforcers can be used effectively even though we do not know their "meaning" or why they are reinforcing.

—People do object to them, and I'm not sure but that in some sense they may be right. It may not be just stupidity. It may be some kind of deeply imbedded social wisdom here. We need to look carefully at all our little tricks and see their possible applications, but then to be very judicious in applying them.

—What could cause difficulty?

—First, there may be something fundamentally wrong in tying up socially approved behavior to a very limited and not very lofty kind of motivation. It can backfire. Parents who worry about getting children to do things that they "ought" to do, for example, sometimes try to bribe them into being polite, being quiet, taking a bath; and before they know it they have a little monster on their hands. It becomes a sort of blackmail. Pretty soon, maybe, you have a child who won't do anything without thinking first, "what's in it for me," and he grows up feeling the whole world owes him something. If you want good, enduring, persisting behavior to be with a child all his life you have to shape up internal cues that will automatically make the child feel reinforced when he does a kind thing or behaves correctly. A smile or social approval often works as well or better than an extrinsic reinforcer. We must be careful about reinforcing a motivational kind of behavior that is socially disapproved and likely to cause trouble for the person for the rest of his life.

—Second, behavior that results from extrinsic reinforcement is weaker than behavior that is intrinsically motivated. It will break down much more easily if the reinforcers are removed. It's no trick to coerce behavior with rewards and penalties. We do it all the time in interpersonal relations, in schools, and in work settings, but we can usually distinguish when we are *buying* behavior that is more or less transient and will stop

when the reward stops and when we are getting something more. You know in the residential school for Indians where they keep the kids for 12 years or so and teach them the ways of the white man, there's a saying that most of them are "back to the blanket" within 60 days after they graduate. Sometimes the behavior sticks, just as some children come to like eating carrots if an ice-cream reinforcement is contingent upon that behavior, but it seems to break down pretty often, too. It is not clear that there is great practical utility in changing specific, unitized behaviors under conditions where there must be mainly external controls. The procedure seems to work better when there is a natural relationship between the task and the reinforcer, as often occurs in a rehabilitation center: e.g., exercizing your leg muscles so you can walk again. The main point here is that the simple possession of skills does not coerce behavior. Children who know how to play the piano don't necessarily do it. Paraplegics who have been taught to walk may use a wheel chair as soon as they are released from the rehabilitation center. The problem as I see it is how to shape behavior so that it does not easily extinguish when extrinsic reinforcers are removed.

—Third, people who are growing or who are mature may resent being treated as if they were in the jelly-bean stage of childhood, and they may resent not obtaining recognition of the degree of autonomy that exists in them. We must recognize that there are subtle as well as gross variables in motivation. Many people have insight into the degree to which they are being manipulated, and they may be relatively unaffected by any reinforcer if they feel they are being treated as robots or guinea pigs.

—Finally, there is a special question of the significance of reinforcement for the emotionally disturbed individual for whom unrecognized and unresolved guilt has become more important than anything else in his life. What's the reinforcement for a person who is in a state of guilt? Is it getting a nickel, getting a grounds pass, getting a jelly bean, getting approval? It's none of these things. Jelly beans may taste like pieces of fried egg and a fried egg may taste like sawdust. The reinforcement process in the mentally ill person may be very different from that of the physically handicapped person. We must be careful that we do not look at the person as if he were an antisocial, hungry rat, for he is not that.

Certainly experimentation should be done, but it must be done carefully, skillfully, subtly, and considerately, with perhaps much emphasis on embedding the reinforcers in naturalistic situations.

—This is really what we talked about for a long time this morning— the secondary reinforcing conditions which are more permanent.

—And the language significances that may allow a person to make more accurate and more stable discriminations.

—Each of the examples can be translated by behavior theory into much more sophisticated statements. That a person doesn't do what he knows how to do doesn't indicate that repetition is not useful in acquiring skills, although there is some doubt about the usefulness of repetition alone and much doubt about the effectiveness of intuitively applied reinforcers. If reinforcement principles are used crudely, rudely, without understanding, unsystematically, unskillfully, unsubtly, without attention to bringing a behavior under the control of a broad range of stimuli where that is necessary, and without consideration of interactions, it would not be surprising if the behavior was not well controlled.

Examples of unsophisticated application procedures which have a plausible resemblance to behavior principles is unconvincing. The examples are unsophisticated applications of behavior principles, and behaviorists cannot be responsible for the results. It is almost as if a specialist in aerodynamics was considering some principles of flight and someone would say, "yes, but leaves don't fly up, they fly down," or "there are organisms with wings that can't fly." There may be a hundred principles, many not well understood, that may be in subtle interaction with each other.

—When a particular principle seems to be denied by a certain situation, it doesn't necessarily disprove the principle. Usually there is a failure to take account of the fact that there is a set of principles that interact and what appears to be the failure of a principle in isolation is merely the interaction effects of the whole system.

Behavioral principles or the principles of any system are not turned on and off like water faucets nor can you just pay attention to the one you are interested in. If they are principles and if the conditions are met, they are always operating, and apparent disproof of a principle lies in the failure to analyze the situation sufficiently to understand the total pattern of principles that are operating. It is always necessary to ask if a principle has been disproved or if one has made too simple an analysis of the situation where there are multiple principles operating.

—The substantive issue here may be whether adults should be treated as children. Up to a certain point they are in the process of domestication or education, and they are treated somewhat mechanistically; but we try to do this in such a way as to produce ultimately a kind of autonomy. People who become disabled may lose that autonomy and, for a time, have to be treated as children. The rehabilitation movement has come into existence in an attempt to recognize their potentials as persons and to re-

establish some degree of autonomy. In other words, these accidents produce a kind of artificial regression, the individual is made helpless and infantile again, and the whole rehabilitation movement is to re-establish the disabled individual as a person. This means, perhaps, bringing him to the point where he responds to his own internalized cues instead of having to be cued off from the outside environment.

—A deterministic approach in which one assumes control of human behavior doesn't rule out developing behavior which no longer requires external imposition of reinforcers. It could well produce under appropriate conditions what some people would call autonomous self-motivated independent people.

—Independent in the sense of different controls.

—Yes, so that it is no longer necessary to have someone who manipulates the reinforcers but rather that the person's own responses acquire the secondary reinforcement that has been mentioned. These controls are built in, even though someone originally had to set up this kind of situation, and the person is no longer dependent upon external controls.[6]

—In this context, too, we have to consider what is being done now in rehabilitation settings. The handicapped person is often treated as a child who has to be taken care of by others who have greater knowledge or wisdom. In institutional settings we all know about the physical and social "stripping" operations which tend to subdue the person's identity, status, and privileges. We know how patients are coerced, denied the right to make decisions about many of their own activities—even simple decisions—and impelled by powerful institutional forces into the dependency of the "sick role." Reinforcement procedures can be used to maintain this state of affairs or to change it in a more positive direction. The reinforcement principles themselves can be considered valuatively neutral.

The learning approach to rehabilitation will have an easier time gaining quick acceptance if it conforms to the existing pattern of activities. These activities have been selected because they are believed by various specialists to facilitate the learning or the recovery of some behavior, and it may not be necessary at this point to evaluate them.

—Yes. The person who may be insulted by playing a little game where he gets to keep all the nickels he picks up with his injured hand apparently isn't insulted or considered harmed when he is asked to weave baskets in occupational therapy, sing songs in music therapy, play marbles

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[6] There was some discussion at this point of the positive effects of intermittent reinforcement and other experimentally controllable variables on increasing the duration and persistence of shaped behavior.

in physical therapy, or directed to engage in other childish behavior. Right now reinforcement techniques are being used intuitively by reha- bilitation workers, but they are being used poorly and ineffectively. If many rehabilitation clients are "unmotivated" and don't do what they "should" do, the study of extrinsic reinforcers applied according to rein- forcement principles may overcome this bottleneck.

—When research is done in rehabilitation settings, we may rarely be dealing with the mature well-motivated person but with the ones who show behavioral difficulties. The latter often do not get effectively reha- bilitated now, so the worst we could do is to leave them in the same situ- ation. There is already proof in these cases that the ordinary "natural" reinforcers haven't shaped up their behavior to desired, socially accepta- ble standards, and we know that many of these people deteriorate when they are kicked out of rehabilitation centers for "lack of motivation" or found "not feasible" for vocational rehabilitation. Perhaps by beginning with extrinsic reinforcers, these "unmotivated," "inadequate" people will ultimately become more mature and independent than they were before they were injured. It is time to try some techniques other than hopefully appealing to higher motivations with counseling methods. If reinforce- ment methods then work with difficult cases, it would be surprising if they could not be generalized to all rehabilitation clients.

—Let's grant for a moment that there may be cases for whom adequate extrinsic reinforcers cannot be found. The nature of the disability and the types of things of which these handicapped people are capable may preclude the introduction of adequate reinforcers. With such cases we may be lost. On the other hand, I think there is no doubt that there are many other cases with whom the proper introduction of effective reinforcers, contingent upon the behavior that was wanted, would be profitable. Many more people could be rehabilitated than is now the case. In addi- tion, once this kind of work was started, any failure would be to a re- searcher a challenge that required further study, and perhaps additional solutions would be found.

—Of course, the use of extrinsic reinforcers does not preclude the use of others. Ideally, secondary reinforcing cues of the real world, outside the training institution, should also be available. A person may learn a particular game to get jelly beans or nickels but not generalize it to the real world. Secondary reinforcers have motivating properties. If I am hungry, pizza can be a reinforcement, and the self-verbalized sign pro- duced by knowing there is an Italian restaurant two blocks from here has

a secondary motivating property. Ideally the training process in rehabilitation should try to use the kind of cues that go beyond the particular training situation and bring in the secondary motivating properties for continuing the behavior.

—Some secondary reinforcers may be undesirable. Signs or cues of competition, for example, where a normal therapist is in a sense competing with his client, may be harmful. There are implications here for the value of having rehabilitated disabled persons as rehabilitation therapists. Learning, the sense of community and attitudinal variables, are affected by whether the model is close to a person's own capacities. The effect of the model on the rehabilitation process is an intriguing research area.

—The study of the deliberate use and scheduling of reinforcers contingent upon specific behavior is also desirable. One advantage of jelly beans for studying certain kinds of problems is that they can be dispensed by a machine. This makes it possible to study problems that would otherwise be inaccessible. It is of small value, for example, to find out that to be released from a hospital is a good reinforcer unless it is possible to present it in a simple way, contingent upon successive approximation. Tokens, something that can be given, are needed.

—How many jelly-bean dispensing machines is a person going to find outside of the rehabilitation center?

—This is a common objection that can be answered in several ways. The straightforward use of extrinsic reinforcers may get some difficult learning over the hump until eventually the person does something so well that the behavior becomes naturally reinforcing and goes on by itself. Suppose, using any kind of effective extrinsic reinforcer, you teach a person the very skillful use of a disabled left hand. It is hard for me to believe that he is going to go out of the hospital and use his feet to pick up something when his hand is now functional. If something like this does occur, it is because the skill has not been developed to the point where it competes with other actions.

—Still, until functional use is achieved an elaborate controlling mechanism is needed. The value of a motive like self-esteem is that it constitutes a sort of built-in, self-monitoring, self-dispensing reinforcer. If you can obtain this it seems far more desirable than to have a series of extrinsic, unitary reinforcers.

—You can combine them. You can first make certain things symbols or tokens of self-esteem that can then be made the contingent behavior.

—It may be difficult to find operations for transforming a global con-

cept like self-esteem into unitary components that are differentially, tightly contingent upon behavior, but it might be done by careful study of reinforcing situations in which one looks for particular signs that can be unitized and utilized. The use of language and social reinforcers in this connection also could be studied.

—I think we would find that the principles underlying self-esteem, or any other sign, as a reinforcer are the same principles that govern the effectiveness of extrinsic reinforcers. There is a difference in what one may consider to be a reinforcer, but the problems of application are similar and the principles are the same. Once you find out that a certain sign is an adequate reinforcer, there is still the question of what is the original learning involved that accounts for its being an adequate reinforcer.

—I think this has been a very fruitful discussion. It is interesting—the magic of words. We talked a little bit about the concept of motivation the other day, and it didn't trip off anything, you know. Now we use the term reinforcement and we have an upheaval. Learning people have all sorts of exciting ideas about this.

—We must remember, however, that it is not simply a difference in terminology. To talk about dispensing a reinforcement *or* achieving success, intermittent reinforcement *or* cognitive dissonance, extinction *or* failure implies not only a theoretical difference and a difference in how one examines behavior but, also, in what the psychologist does and should do. Fortunately experimental data are relatively neutral and can be used regardless of where the locus of behavior may be placed.

—From a behavior theory standpoint, one of the most important things that we can offer to rehabilitation clinicians and researchers is a frame of reference which induces them to look for adequate reinforcers, and to apply them correctly, skillfully, and subtly wherever possible. If this approach were followed, many presently difficult problems might become readily amenable to solution. Exciting and productive research can be done here.

Communication, Social Discrimination, and Sensory Deprivation

Communication

—One problem area that cuts across the entire field of rehabilitation is acquiring, maintaining or relearning speech, language, and communication. Difficulties with these functions may be primary handicaps in many different kinds of disability.

—Within the last ten years a number of major contributions have been made to the field of verbal behavior or communication by language that probably are not being maximally exploited. For example, individuals now perceived as retarded or brain-damaged might have a specific type of language difficulty, not previously identified, that would be responsive to new procedures guided by behavior principles. In other disabilities, too, language function should be studied systematically, since it is not always immediately obvious to an observer or counselor that a behavioral deficit may reflect a language problem.

It would be interesting to know what sort of language disturbances occur in disability not only as related to audio-vocal, visual-graphic or perceptual-motor behavior but in all channels. Do certain kinds of disabilities have a certain characteristic profile or pattern of language disturbance, and how does it come about? Is the disturbance intrinsic or extrinsic; a function of disability or a function of the enviromental situations that are common for a particular disability? The study of communication in the disabled, with measures of communication abilities and functions that would not be global but would pinpoint the aspects disturbed, would be of interest. Special attention might be paid to the encoding and decoding meanings that words have to the handicapped. For example, what is the effect of loss of a sensory modality on language learning? What happens at all levels of the language process in deaf persons, blind persons, and deaf-blind persons who are born that way and persons who become deaf or blind? One would expect breakdowns in the sequencing and ordering mechanisms in encoding. There would be a loss of guidelines.

—These are examples of important problems that may not be perceived by rehabilitation workers for they are not at present mentioned in this form in the rehabilitation literature.

—There would be clear advantages for theory also. Disabled persons represent what are sometimes called "natural experiments," as contrasted to laboratory experiments. Their special experiences might allow tests of certain general hypotheses that could not be made in other ways. It is possible that research oriented to helping the psychologist obtain better information about his system might also yield clear-cut practical implications of great utility.

—For any specific problems, there is a learning theory approach. Begin with a learning analysis of a problem area and this will indicate the types of diagnostic and remedial studies that can be developed.

—We are convinced that an experimenter with a learning background who applied himself to these problems would come up with results of practical importance to rehabilitation. It is not possible or desirable, however, to jump in with hypotheses for testing or elegant fully-designed experiments that have been pulled out of the blue. There is a real need for getting the feel of the phenomena first, for probing rather than proving, and for exploratory trying out this or that in the light of our theoretical constructs.

Social Discrimination

—Prejudice is governed by the same mechanisms that contribute to useful stimulus generalizations, but it is not clear that it is an appropriate concept for responses to the disabled. There are some marked differences in the origin and maintenance of negative *discriminations* of individuals who have functional, behaviorally manifested deviations and the social *prejudice* that may be directed toward other minority groups.

—Few people are prejudiced against the disabled in the usual sense of the word. We wouldn't say that children have a prejudice against unsafe behavior such as crossing the street without looking, or prejudices against bad companions, dirt, or uncleanliness.

—When a person has acquired certain responses to stimulus objects on the basis of valid experience with those objects, the response is not prejudice. On the other hand where he has acquired the responses on the basis of other experiences, primarily language experiences, and these responses are the opposite of those which he would have acquired with actual experience, then we might want to call it prejudice.

—Prejudice toward the handicapped is the wrong word entirely. The discriminations result from a much more humane mechanism. They serve the function of reducing the identification anxiety that is aroused in the physically normal perceiver as a consequence of our own social training. If one has received aversive stimulation or punishment for certain non-co-ordinated responses, one is likely to respond with anxiety to someone else's inco-ordination, and this leads to avoidance through stimulus generalization. It doesn't mean prejudice in the usual sense. One may intellectually differentiate disability as a misfortune for which the person is not responsible, recognize that the disabled person is not a bad or inferior person, and yet be disturbed by his behavior.

—On a *social* level, it is not evident that discriminations and penalties against inadequate performance are undesirable or that attempts should

be made to alter them. It may be beneficial and functionally useful, in the long run, to allow those cultural influences which hold a person responsible for his situation to stimulate better performance, and it might be unwise to attempt to remove these influences from the culture.

A certain amount of social efficiency is controlled by a critical evaluation of deviant behavior. For example, criticizing sloppy speech habits serves the function of maintaining more effective speech. We want to keep in the culture those forces that shape up good behavior. This is not the same thing as prejudice and must be distinguished from it.

—Learning theory explanations of the formation of discrimination and generalizations can be advanced, but inasmuch as control of the relevant variables with respect to the handicapped are not in the hands of psychologists, research on social learning problems may not be very rewarding at this time except on a pilot basis. It might be helpful for desensitization of "perceptual allergies," for example, if characters having a disability were introduced casually in literature, the comic strips, and the movies simply as people and not, as is at present the case, in such a way that something significant depends on the disability. But this kind of social manipulation is not under the control of psychologists.

—On the other hand, research exploring the development of more precise discriminations of a disabled person so that perceived inadequacies in one function, such as speech or locomotion, would not generalize unwarrantedly to the whole person may be both feasible and desirable. Similarly, where task performance was impaired, discriminations of performances could be developed that were relative to the person's capacities and the difficulty of the task for him. We make such discriminations now with respect to the performance of children, and similar ones might be developed for some performances of the disabled.

—On the *individual* rehabilitation level, counteracting the effects of discriminatory social responses toward the handicapped involves a threefold set of research problems.

First, there should be emphasis upon working with the disabled person to improve his performances. Many proven laboratory principles for developing fine quality perceptual-sensory-motor skills, for example, are not being fully exploited at this time.

Second, there could be studies of behavioral methods for increasing the disabled person's perseverance and persistence in the face of social difficulties and decreasing his sensitivity to social trauma, frustration, and failure. There is a marked discrepancy between the permissiveness that is accorded handicapped children and some behaviors of institutionalized

adults, and the much harsher treatment meted out to handicapped adults in the general community. Present methods used by parents, teachers, and therapists may be training the person to be less persevering and less able to tolerate social derogation. Deliberate intermittent reinforcement procedures and the effects of gradually increasing aversive stimuli (such as rudeness and prying curiosity) in a benign setting could be investigated. The purpose, of course, would be on the one hand to extinguish the handicapped person's emotional responses to the social treatment he is likely to receive, and, on the other hand, to shape up an individual who is more resistant to extinction of performances that are difficult but possible for him.

Third, it is feasible to develop precise discriminations in the person so that inadequate performance in one aspect of his behavior would not generalize to other aspects of his behavior which might be adequate or superior.

Sensory Deprivation

—This kind of phenomenon can be discussed in terms of reinforcement principles and brought into a behavioral frame of reference.

—When a person is hospitalized, placed in a wheel chair or a polio tank, many of the ordinary reinforcers of his life situation are diminished or removed. The effect of the sharp withdrawal of the primary and secondary reinforcers that have been maintaining his behavior is to produce apathy, lethargy, and depression.

—Deliberate effort must be made to bring back into the environment of the disabled or chronically ill person some of the discriminative complexity and at least some of the minor reinforcers that existed in his previous environment so that there is a gradual transition to a new set of discriminations and reinforcers. Detailed procedures for accomplishing this transition would be helpful.

—Studies of induced deficits in animals from environments of different richness might contribute information that would be relevant to humans. A little of this work has been done, and a survey of the literature, with rehabilitation problems in mind, might be of value.

STIMULATING RESEARCH

Research Personnel

—The psychologist in rehabilitation often seems to be perceived by other disciplines in rehabilitation settings as a person who does intelligence and personality testing and tries to "understand" how the patient

feels and what he believes. The work and possible contribution of social, cognitive, physiological, and learning psychologists to rehabilitation problems appear not to be known.

—If psychologists trained to describe personality, and treat emotional pathology that is relatively uncomplicated by reality variables, are the only members of our profession who work in rehabilitation settings, it is not too surprising that psychology may not be highly valued by members of the other professions who work in rehabilitation.[7] It often seems as if the traditional clinician's contribution amounts to a static, descriptive psychodiagnostic evaluation which may have very little relevance to the immediate reality problems that are being faced by the disabled person and the people who are attempting to treat him. Rehabilitation personnel probably would welcome some practical, workable directives for effecting specific kinds of behavior, and this the clinician does not, and perhaps cannot, give.

—The image of the psychologist may be difficult to alter because rehabilitation workers appear to be unfamiliar with the practical, clinical relevance of the knowledge and methods of the learning psychologist.

—A learning psychologist would attempt to deal directly with facilitating, maintaining, or extinguishing behavior by manipulating, for the most part, environmental variables; and he would do research on effective ways of obtaining behavioral control. There is some evidence now—mostly fragmentary and unsystematic—that statements of methods and

[7] There was considerable discussion and sympathetic recognition of the practical limitations that often are placed on the activities of psychologists who work in rehabilitation settings in which medical care is the controlling variable.

It is also recognized that all psychologists in rehabilitation strive to produce desirable behavioral changes by using the tools that they have. Clinical psychologists presently have more formalized procedures and more varied tools for reaching a diagnosis of a person or a situation. The utility of these procedures and tools is not always evident, and the fact that they must be applied individually to each person and each situation is a further limitation. Beyond diagnosis, clinical therapeutic procedures and tools are admittedly far from rigorous.

Behaviorists, on the other hand, have a more elegant theoretical structure, more precise operational tools for initiating and controlling behavioral changes, and, since environmental variables are central, once a situation has been "sized up," the psychologist can proceed immediately with remedial efforts even if the entire original population has changed. However, behaviorists presently can specify only vaguely the preliminary procedures for "sizing up" and isolating manipulable variables.

In service activities, it was believed that clinicians and learning psychologists could facilitate each other's work. With respect to research priorities, it was recognized that it is much easier in a clinical research proposal to specify at the outset just what was going to be done and how it would be done. Such preliminary structure is surely desirable where it is possible and helpful, but one should not lose sight of the fact that remedial action is the ultimate goal, and the learning psychologist has a set of extremely well-structured procedures for inducing desirable behavior.

directions, derivable from behavior principles, could be made successfully to all types of rehabilitation therapists. If additional research confirmed these promising beginnings, it seems probable that new and improved methods for shaping up behavior that facilitates rehabilitation would be discovered and the task of the rehabilitation worker would be made less difficult. Even now, if many rehabilitation psychologists had these behavioral principles at their disposal so that they could make positive, practical statements to, and engage in positive collaboration with, other therapists, psychologists would soon be much more highly valued.

—The suggestions made several days ago must be emphasized. Good psychological research begins with well-trained psychologists who have had an opportunity to become familiar at firsthand with the field of rehabilitation and its problems. Predoctoral and postdoctoral, experimental-clinical training programs combining work in a university and a rehabilitation setting would be helpful. Research fellowships of all varieties—senior, junior, part-time, full-time, and summer—are essential.

—And these research appointments, at least until a core of knowledgable researchers is formed, should be for relatively informal work. It is necessary in the beginning, if learning psychologists are to be attracted, to support the gaining of experience. An absorption of information about the rehabilitation process and problems may be considered an investment in the better research that will come later.

Research Facilities

—The staff in rehabilitation settings consists of experts who have empirically developed more or less effective ways of interacting with their clients, and they know more about their own fields than does the psychologist. If the psychologist is relatively low in status in a setting that requires teamwork, can effective research be done?

—Psychologists will gain in status as they demonstrate that they can help solve important problems. In many situations it would appear that excellent demonstration work can and should be done to provide increasing evidence that behavioral principles are efficient tools to work with.

—For maximum gains, however, which would expand the capabilities of behaviorists to deal with rehabilitation problems, at least some experimental research installations must be obtained where a psychologist would be in charge of a clinic, a vocational rehabilitation office, or a ward.

There are several reasons for this. First, the learning psychologist tends to work with one or a few specific behaviors at a time. The expectancies

for rapid global changes in behavior by those not familiar with the ultimate long-term gains that can be achieved by very gradual, unitized changes could be highly disruptive and would impede highly promising developments that require time and careful effort to work out.

Second, the distinction between basic research where one wishes to eliminate extraneous variables so that a process can be illuminated, and procedural research where one wishes to end up with "best" behavior, may not be appreciated in a practical work setting. The most effective research must concentrate on the study of process, for once this is well understood, the procedural problems are more easily solved.

Third, the learning psychologist's emphasis upon the manipulation of environmental variables runs counter to some strong, emotionally charged beliefs of others. Crude stick-and-carrot techniques may be not only ineffective in some cases but also possibly harmful. The introduction of reinforcers and the altering of significances, therefore, must be done with sensitivity, subtlety and skill, and preferably under naturalistic conditions in which the manipulative aspects are obscured. Control over these critical variables may be difficult to obtain, when an investigator may merely advise or seek the cooperation of rehabilitation staff members who are not responsible to him, and if control was lacking, procedural research of this kind would be difficult or impossible to do.

Other Topics

The work group discussed a tremendous range of theories, principles, concepts, and problems related to learning research in rehabilitation.

There were many stimulating observations and exciting ideas for investigating all sorts of practical problems and theoretical issues. Almost every possible mental, physical, and emotional disability—from alcoholism to quadriplegia—was mentioned at one time or another. The problems discussed ranged from correcting speech impairments to social emotional relationships to institutional behavior to whether to tell a person the extent of his disability and how to tell him. As one participant remarked with wonder, "If we take these common-sense problems and shake them up a little bit in the context of existing principles, new ideas and significances come out that we never realized before," and everyone agreed.

Similarly, such unlikely concepts for learning psychologists as character, anxiety, identification, insight, dependence, loss, misfortune, self-concept, the meaning of work, hopefulness, rehabilitation value, sin, guilt, conscience, and secondary gains were analyzed in terms of behavior

theory with astonishing and exhilarating outcomes. The translating of concepts into behavior, tracing how they come out while looking for the points at which behavior changes or breaks down, led to rather strange but logically sound and testable predictions. Everyone in the group felt that this kind of analysis was fruitful and rewarding, for, while not much has been done experimentally in this area, it became clear that there was a behavior view of much phenomena that up to the present has been conceptualized only in mentalistic terms.

In line with our feeling that we were considerably removed from the realities of rehabilitation, however, few of our speculations or partially formed notions for interesting research have been given in this report. None of the ideas, it was felt, was any better than similar ideas that would be generated by other psychologists in a similar situation, and it would serve no purpose to present them. In the final analysis, as others have pointed out, the best research develops when a creative investigator follows his own bent on problems of his own choosing.

SUMMARY

The work group on learning, consisting of five psychologists with five separate views of the nature of learning, agreed to define behavior theory as the study of all of the variables that are involved in the maintenance of behavior.

For discussion purposes, they conceptualized the problems of rehabilitation in two major atheoretical ways: (*a*) as a trifold overlapping of habilitation (original learning), dishabilitation (modifications of behavior resulting from the condition of disability), and rehabilitation (the new learning, unlearning, and relearning which lead to adjustment) ; and (*b*) as maintaining behavior, acquiring behavior, and extinguishing behavior. For each part of each set of concepts, numerous possible dimensions and combinations of dimensions were mentioned.

Some nonlearning physiological processes, such as loss of energy, loss of capacity, and spontaneous recovery of function, were noted as having effects, but these were not discussed. In addition, the essential similarity of rehabilitation problems and those encountered in growing older was recognized. Disability effects are more intense, but the process, including what has been called "loss" and "mourning," is experienced by everyone as he ages. Every person, in one sense, is continually rehabilitating.

The first set of concepts was considered within a multi-stage general theory of behavior with particular emphasis on the encoding-decoding

and instrumental acts-significances processes. The second set of concepts was considered within a single-stage S-R framework with special emphasis on the principles underlying reinforcement, extinction, discrimination, generalization, and counterconditioning of incompatible behaviors.

It was soon evident that there were numerous important problems generated that could be investigated with equal benefits to learning theorists and rehabilitation workers. The discussion of a few of the possible areas for productive work made it clear to the group that rehabilitation problems could be conceptualized so that their importance to learning psychologists was clearly evident. It was evident also that learning psychologists had important practical contributions to make to the field of rehabilitation. As particular problems were considered it appeared increasingly clear that all possible relearning in rehabilitation is not being accomplished and that few, if any, new-learning problems are being handled with maximally effective application of learning technology.

The work group declined to list or rank in priority the important rehabilitation learning researches that should be done. It was believed that this was neither necessary nor desirable, but on the contrary would be likely to inhibit the development of really creative research. The work group emphasized repeatedly that greatest research progress occurs when an able researcher is given freedom to work on his own problems, in his own way, and with his own procedures. The importance of a problem per se is of relatively little concern, for a creative investigator can make a seemingly trivial problem yield surprising fruits, while a journeyman investigator can reduce a seemingly important problem to banalities. Research problems are not assigned to scientists as tasks or given as gifts.

Repeatedly, also, the group stated their beliefs that a combination of behavior theory background and practical experience in rehabilitation was required for creative rehabilitation learning research. They urged that psychologists who think in conceptual language (who can relate psychological concepts to rehabilitation data and rehabilitation data to psychological concepts) be encouraged to obtain rehabilitation experience and that, simultaneously, qualified rehabilitation workers be encouraged to obtain university training in behavior theory.

Numerous practical proposals were made for increasing the number of learning psychologists in rehabilitation by a system of flexible, OVR-sponsored research appointments. The group called special attention to the tremendous long-term gains that could accrue to the field of rehabilitation from awarding half-time fellowships to junior faculty members and

summertime fellowships to senior faculty members for psychological work in rehabilitation settings. In this way, and also by establishing predoctoral and postdoctoral training programs in psychology departments that are strongly oriented toward behavior theory, the future development of rehabilitation work could be "built in" to the main stream of university teaching and research. Great gains to the field of rehabilitation could be expected to result, and the gains to the field of learning would not be small.

With respect to the kind of research that would be of maximum utility, the group returned again and again to the advantages of a flexible probing rather than a proving approach. They noted the very real dangers of premature formalization of research in a relatively undeveloped field, and they cautioned against the trivial and impoverished research that is coerced when investigators are bound to tight little research designs. It was believed that if the study of processes was encouraged, practical applications would inevitably follow.

The work group was unanimous in feeling that the conference was a rich and rewarding experience, that they were taking home with them much of value that previously was unknown to them, and that, hopefully, the results of their deliberations would prove beneficial to the development of rehabilitation learning psychology.

<div align="center">REFERENCE</div>

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Personality, Motivation, and Clinical Phenomena

EMORY L. COWEN[1]

INTRODUCTION

A T THE very outset it may be helpful to comment briefly on the basic issue of the role of psychologists in general, and the personologist in particular in research planning on the psychological aspects of disability and rehabilitation. Since the participants in the Miami conference were drawn primarily from the main-stream of academic psychology rather than from the applied field of rehabilitation, the foregoing question was one which, quite naturally, attracted a good deal of attention. Expression of a point of view on this matter will provide a framework within which the substance of this chapter takes on meaning.[2]

Broadly speaking, there are two ways in which the personality psychologist might be useful in accelerating study of the psychological aspects of disability and rehabilitation. One of these would involve putting his wisdom, experience, and knowledge at the disposal of the professional rehabilitation specialist who is faced with practical problems in the area of motivation and personality, deriving from his everyday patient contacts.

[1] This chapter represents a fusion of a working paper prepared by the author for the Miami conference and the actual deliberations of the subgroup for this area. The participants in the latter were Drs. Richard S. Lazarus, Abraham S. Luchins, Bruce Thomason, and Morton Wiener. Much of the thinking which has gone into the present write-up reflects the ideas and viewpoints of these four participants.
[2] It is perhaps part of the nature of such meetings that it becomes difficult, indeed challenging, to sort out after the fact the genesis of some of the basic points which emerge. Where this can be done, the author attempted to do so. In other places there remain unacknowledged credits. Whatever constructive emerges from the chapter should be regarded as a product of the group. On the other hand, it is to be emphasized that the group has not developed a set of pat resolutions or answers to our common problems and that there remain in various places substantial areas of inter-individual disagreement in emphasis and in predilection. In preparing this chapter, it has therefore been necessary to take a stand which may, in fact, do violance to the thinking of one or more of the participants. In this sense, the group members should not be held responsible for the author's follies. He reserves full claim to the chapter's shortcomings.

The types of questions toward which his research skills and expertise would be directed might include: "What kinds of personality variables might be helpful to us, in the light of your knowledge of theory and the research literature in this area, in our attempt to understand observation x or phenomenon y?" or, "We think personality variable z is very important in understanding how a person will adjust to a given disability or how he will progress during rehabilitation. How might this characteristic be assessed and how can a research study be set up in which its effects are carefully examined?" The underlying approach here is largely an *ad hoc* one. The issues to be researched derive from practical considerations and clinical experience (although this certainly does not preclude the possibility that some or many investigations of this ilk may have important theoretical implications). In this sense, the personologist would be serving the role of an expert consultant, bringing his special training and knowledge in the area of personality to bear on problems of disability. It would then become desirable to "line up," as it were, a series of seemingly significant and relevant questions and to set up concrete investigations reflecting the highest level of current information regarding personality study.

A second potential role for the personality theorist exists on a more conceptual plane. Here the most pressing questions would be: "What is the place of personality theory and research in the study of disability and rehabilitation?" and, "What basic directions must we move in if we are, 10 or 20 years hence, to have more systematic and comprehensive knowledge of the place of personality-motivational variables in these areas?" Each of these two types of roles is an appropriate, legitimate, and needed one. Depending, however, on which one is assumed, the specific directions in which a research planning group might proceed, would vary markedly. In what should be regarded as a personal value judgment, the author has leaned toward an emphasis upon the second (i.e., theoretical-conceptual) role. Although some consideration will be directed to practical everyday issues, the latter tends to be incidental to the guiding focus. Some factors leading to this position are reviewed briefly below.

Historically, we at the Miami conference were the children of the Princeton conference of 1958 (Wright, 1959). The latter was something of a broadside preliminary exploration of the roles, actual and potential, of psychology in the area of rehabilitation. Perhaps it might be well to think of it as an example of the principle of mass action in neonatal development. From the proceedings of that meeting, to carry the analogy

one step further, buds of differentiation in such diverse rehabilitation related areas as clinical service, training, and research can be seen. The Princeton conference was in no sense devoid of consideration about research. On the other hand, being diffuse (and I do not use the term in a derogatory sense) in their orientation to the role of psychology in rehabilitation, it was not possible for the constituents to go beyond a type of buckshot spattering of individual research ideas, upon which some loose grouping was only subsequently imposed. Doubtless with good reason, our forebears reached the conclusion that no more than this primitive type of differentiation could be achieved within the limits imposed by their much broader aims. Thus it was explicitly recognized (Wright, 1959, p. 84) that:

> . . . further examination of needed research would require a separate institute devoted solely to this matter, the necessity for which was felt to be so urgent that it was offered as a clear recommendation to interested groups.

From the proceedings of that conference it seems eminently clear that many professional leaders in rehabilitation look to psychology, as a profession, for leadership in the area of research. There is nothing whatsoever wrong with this; in fact, I think we should be both flattered and challenged by it. At the same time, a quick glance at the world of reality suggests that the path may be studded with ponderous obstacles. Currently, quoting from the conference report, "Many psychologists find it impossible to engage in active research while at the same time fulfilling various service, training, and administrative functions," and "Adequate time for either extensive or intensive investigation is sorely crowded by demands for other functions." We might hope that this state of affairs reflected nothing more than an acute shortage of professional personnel. I am not fully convinced that this is the case. For, when a group of psychologists was asked the question, "What services do you think psychologists in rehabilitation are insufficiently rendering at the present time?" only 16% referred to research. If psychologists in rehabilitation feel such a limited need for research in this area and psychologists are presumed to be the potential leaders in this type of endeavor, is it not fair to assume that other professional members of the rehabilitation team would feel the need even less? In short there does not appear to be very much of a ground swell, at the level of the grass-root rehabilitation worker, demanding research. This too is understandable! Where available services are insufficient to meet service needs, we should not expect to find ground swells for research; in fact, we should anticipate resistance to it. Service

needs must be met on a minute-to-minute basis; research requirements have the illusion of postponability. This type of problem, however, will ultimately be resolved by high echelon administrative wisdom and foresight. We owe a debt to our Princeton predecessors for the series of incisive recommendations which they made in this regard.

There is, however, another element to the problem. Granted that it may, in the foreseeable future, be possible to overcome the practical drawbacks to research, research remains a difficult commodity to "sell" in the abstract. Science is slow and probabilistic; those working with patients often wish to have immediate and certain information. The field worker, understandably, is guided by the very practical question of "What procedure can I use with this specific individual, *now,* to enhance the rehabilitative process?" What this means, quite naturally, is that as psychologists become involved in research activities in rehabilitation centers, they may expect to encounter heavy pressures to undertake immediate, practical, and applied investigations. To some extent, I felt that pressure had crept into the Princeton conference, and it is at this point that my concern arises. I base this judgment on several facts.

In the first place, the series of actual research suggestions in the area of rehabilitation, solicited from psychologists and reproduced in the appendix of the volume, includes a sizable proportion of such proposals, as for example, workmen's compensation as related to motivation and success in rehabilitation, group therapy with TB, NP and orthopedic populations, marriage counseling with seriously disabled orthopedics, etc. It is important to note that these suggestions were made by psychologists who, as a group, should be more sensitized than any other professional rehabilitation group to the need for basic research, because of their training and heritage. It thus seems reasonable to assume that other professions as groups would be even more applied in their research suggestions.

The Princeton conference reminds us by implication and occasionally by more direct statement, viz., "No research without action; no action without research," of the pressing nature of applied problems. Even though the need for answers to practical questions is indeed a prime spur to research, such research at the present stage of the discipline may, at best, be of limited value. Perhaps more fundamental is the job of sketching out a blueprint for basic personality research so that the field of rehabilitation might have the guidelines to help it to move in the direction of becoming a self-sustaining, going organization, research-wise.

Rehabilitation today may be going through the same growing pains

and muscle flexing as the field of clinical psychology experienced 15 years ago. And, no doubt as we are learning in clinical psychology, we shall also find in rehabilitation that we cannot put up a building without a foundation and building blocks. Illustratively, we cannot hope to be able to answer practical and applied questions until we have requisite measures and techniques for their study. My limited acquaintanceship with the area has failed to turn up very many of the essential foundation stones and building blocks. Illustratively, are we capable at the present time of being able to do something as fundamental as reliably *describing* the basic steps or stages in the rehabilitative process? Certainly until we are capable of establishing a methodology or framework for doing so, any impulse to examine the effects of differing types of actions or interventions on the acceleration or deceleration of the process will be thwarted. In the same vein, scanning the list of research proposals coming out of the Princeton conference, I noted at least a dozen times, suggestions for studies concerning determinants of "successful" or "effective" rehabilitation—certainly a worthy and fair concern. But is there agreement on what is successful or effective rehabilitation, and if so, to what extent do we have techniques for its reliable measurement?

Methodological research, to be painfully blunt, can be unglamorous "dog-work" (Cowen, 1958; Cowen, Underberg, Verrillo, & Benham, 1961). But a carefully laid methodological foundation, despite its painstaking and time-consuming demands, is the core of sound research and, I suspect, a time-saver in the last analysis. Quite probably, the important substantive gains in psychotherapy research (including applied as well as basic research) during the past decade (Rubinstein & Parloff, 1959) are based on concerted effort following the development of sound methodologies, be they verbal content analysis systems (Porter, 1943a, 1943b; Snyder, 1945; Bordin, Cutler, Dittman, Harway, Rausch, & Rigler, 1954; Auld & Murray, 1955; E. J. Murray, 1956; Leary & Gill, 1959; Saslow & Matarazzo, 1959; Bordin, 1959) or physiological recording methods (Boyd & DiMascio, 1954; Shagass & Malmo, 1954; Dittes, 1957; Lacey, 1959), which opened significant new areas to experimental study.

An orientation to the need for methodological work illustrates, without exhausting, the broader category of basic research. As may be judged from subsequent sections of this chapter, notably the one on the "psychotherapy parallel," applied issues have not been dismissed *qua* category of research. However, a certain amount of insulation has been maintained against both internal impulses as well as external seductions and pres-

sures to be helpful with practical problems which are at once concrete, immediate, and challenging. There is a need to exercise initiative in structuring not only the limits of one's potential contributions but, also, the directions in which it is believed such contributions can be made.

As the field of rehabilitation comes increasingly to meet demands for professional service, I anticipate that the psychologist, as he has done in the past decade in medical schools and mental hospitals, will assume greater responsibility in the area of research. He will doubtless exercise considerable research leadership, in addition to functioning as a resource person and consultant for other professional personnel. Certainly this will be one mechanism whereby the study of practical research problems with immediate, pragmatic value will be furthered. However, at this moment, I perceive as a primary requirement the identification of potential contributions from the "main-stream" of psychology with potential for accelerating the research charting of an emerging new field, which is both significant and challenging. Accordingly, the brunt of concentration and focus in this chapter has been directed toward basic research in the areas of personality and motivation, and clinical psychology.

The remainder of this chapter will be directed to three major areas: (a) the presentation of a more specific point of view about the optimal role of the personologist in research planning in disability and rehabilitation; (b) consideration of potential contributions from personality theory and research to this area, with an illustrative example; and (c) an overview of some communalities and differences between rehabilitation and psychotherapy with an eye toward the specific research potential which such a comparison may harbor.

THE PERSONOLOGIST'S ROLE IN RESEARCH IN DISABILITY AND REHABILITATION

Physical disability, as a state, is defined essentially by objective, external, observable attributes, characteristically involving impairment or restriction of function. The more the impairment is directly evident to the observer and/or the more it imposes gross restrictions of physical functioning upon the organism, the easier it is to define any given instance as belonging to the larger genus. Implicit in this statement is the notion that physical disability exists along a more vs. less continuum rather than in an "either-or" sense. At a theoretical level the issue is considerably more complex than the form in which it is stated. For example, there is ample evidence indicating substantial cultural differences regarding the

ostensibly clear-cut judgment of what is impairment of function (Hanks & Hanks, 1948; Wright, 1960). Practically speaking, however, the proposed viewpoint is functional in the sense that virtually all patients seen in rehabilitation settings present conditions involving either evident impairment and/or "gross restriction of physical function."

If the psychological and behavioral sequelae of disability in general or of a specific disability in particular, approached universality, there would be little place for the personologist in a conference designed to chart research tactics and stratagems in this area. The lion's share of planning could then properly be delegated to specialists in physical medicine and in social psychology. This, however, is not the case! If we have become aware of one basic "fact of life" concerning disability it is this: we cannot adequately predict complex human behavior directly from the knowledge of objective attributes of physique, variation in physique, and physical disability (Barker, Wright, Meyerson, & Gonick, 1953; Meyerson, 1955). Thus it is that individuals with virtually identical physical disabilities, objectively speaking, evidence distinctly different behaviors and adjustments both qualitatively in terms of style of adaptation and coping mechanisms and, quantitatively, in terms of level of adjustment or degree of pathology. An even more dramatic illustration of this principle well within the ken of those who have had clinical experience with the disabled is the not infrequent observation of serious behavior pathology in individuals with objectively minor physical disabilities as contrasted with excellent adjustment in individuals with extraordinarily debilitating insult. Parenthetically, we may also note the converse to be true. That is to say a number of widely divergent physical conditions or states may be followed by relatively comparable behaviors and adjustments. Accordingly, we are forced to assume that the process of adjustment to disability is undoubtedly a highly complex one, involving one or more basic psychological mediations.

Phrasing the issue in its most general form, the greater the interindividual variability to a standard stimulus condition (e.g., a particular disability) or, the greater the variety of stimulating conditions (e.g., a spectrum of disabilities) which are followed by a constant response, the more significant and complex are intra-individual mediational processes likely to be. Each of the foregoing two types of variability is observed with physically disabled organisms; hence, there is a need to focus on functional relationships intervening between the occurrence of a given event in the environment and the behavioral response of the organism to that

stimulation. Undoubtedly there are numerous such classes of factors. Depending on one's level of molecularity and/or theoretical bias it is possible to investigate biochemical, neurophysiological, intellective, cognitive,
and personalistic determinants, to mention several of the more important
groupings. However, the unique mandate of our group called for a focusing upon personalistic determinants. It is recognized that this is an
artificial "abstraction of convenience."

With the above limitation in mind, the most basic problem to which
the personality theorist and personality researcher must address himself
is "what are regularities or lawfulnesses involving personality and motivational variables which govern the transformation of an environmental
event into an internal state and then to an act of behavior?" This same
question can be construed to have relevance cross-sectionally to a specific
behavior, as well as longitudinally to a longer range pattern of adaptation. As stated, the question is a generalized one with applicability to
disabled and nondisabled organisms. It recalls our prior observation that
a great variety of stimulus conditions can be followed by a given behavior or type of adaptation. Implicit is the belief that the laws governing
adjustment to disability are likely to be the same as those governing adjustment to any other condition. This is as it should be. The term physical
disability may be one convenient external shorthand by which human beings may be descriptively categorized, but there may be considerably more
important functional attributes which govern the behavior of human organisms. Indeed it is both realistic and pragmatic that the matter be
phrased in this way. It is realistic in that the basic empirical facts of the
science of psychology have relevance for disabled organisms; hence, there
seems little justification for development *de novo* of a separate psychology
for the disabled. To phrase the matter in terms of a somewhat shopworn
cliché—disabled people are disabled; but they are first of all people. It
is pragmatic in that it creates an atmosphere and an outlook in which the
flow of knowledge to and from other content areas in the larger discipline of psychology may be accelerated.

Possibly, one logical consequence of this view might be that there is
no need for the personality theorist or the cognitive theorist, etc., to be
concerned with the area of disability specifically. If he and his peers effectively go about the business of charting their fields, eventually we will
have a sound basis for understanding why humans, whether disabled or
not, behave as they do. In principle, this may be an entirely defensible
position. On the other hand, it is also justifiable to assume that disabil-

ity may increase the likelihood of occurrence of certain classes of events for the disabled person, as for example being faced with new situations which are beyond his experiential background. The functional relationships between such situations and consequent responses are not likely to be *unique* to the disabled person; it is rather that he is likely to experience them more often than his nondisabled peer. To the extent that this is the case, then knowledge obtained from the study of behavior following events and situations to which disability may more frequently expose the individual is likely to be of generalized usefulness. Other nondisabled organisms will also experience such circumstances, and their behavior should be governed by the same regularities.

Seemingly the most important gap in the foregoing conception is in terms of the heavy emphasis on the nature of the situation, almost to the exclusion of the individual. The following is not to invalidate the contribution of situational determinants; rather it points to a potentially weak link in the theoretical chain. Behavior is complexly determined. Situational factors are important—in some instances compelling. But so are personalistic ones! The stimulus properties of an object being viewed are contributory to the organism's perceptions—but so are the particular characteristics of the organism. The massive area of projective psychology rests squarely on this fact. So does the voluminous cumulation of research in the even broader area of personality and perception. These are important elements which have not yet been fitted into the theoretical scheme. To be sure there are many circumstances which the disabled person experiences with greater frequency than does the nondisabled. But as with the Rorschach inkblot, there are vast differences in the perceptions of such circumstances among disabled organisms and, once perceived, vast individual differences in coping styles. In one sense it is not unreasonable to liken disability to a massive projective technique. It is almost necessary to do this in order to satisfactorily account for the tremendous individuality of response to certain objectively constant, or highly similar, circumstances and events.

Depicting this issue in the phraseology of experimental design, we have oriented ourselves towards particular types of conditions by subject interactions, where conditions are defined by events and circumstances toward which disability may be predisposing, and the subject effect is defined by personality-motivational variables which are likely to relate to transformation from the stimulus condition to a particular internal state.

We cannot, in the final analysis, ignore the fact that disability takes on importance primarily as a result of its assumed predispositional value to certain classes of events or situations. Given these events, whether they take place because of disability or any one of a host of other factors, the regularities governing consequent behavior will be constant ones. Thus fields of somatopsychology and rehabilitation may at once contribute profoundly to a broader understanding of many other content areas and may draw upon knowledge from such content areas which evolved without reference to, or awareness of, problems of disability, e.g., sensory deprivation research (Solomon, Leiderman, & Mendelson, 1957; Solomon, Kubzansky, Leiderman, Mendelson, Trumbull, & Wexler, 1961).

CONTRIBUTIONS FROM THEORY AND RESEARCH

The section which follows will deal briefly with the nature and purpose of psychological theory, point up some presently available concepts from personality theory with seeming potential for the study of problems of disability and rehabilitation, and finally go on to develop a particular theoretical formulation which may hopefully provide a basis for more systematic research study in the area of adjustment to disability.

General Comments on Theory

A theory may be viewed as a type of abstraction, potentially at varying levels of complexity, involving inferences or hunches about relationships in the world of reality. The minimal *desiderata* of a theory are two: definition of terms, and specification of anticipated relationships among the constituent variables. A minimal theory requires the existence of such specification for at least two variables. When a theory includes as many as three variables and their posited interrelationships, we may technically consider it to be a complex theory; in practice, however, the term complex theory is reserved for those involving a relatively greater number of variables, frequently comprising an involved and intricate network. These latter more complex theories characteristically include a series of underlying assumptions, which relate to the empirical facts falling within the scope of the theory. Perhaps as much as anything else, these assumptions or ground rules are the prime cross-theory differentiators.

Theories are labeled in terms of the events with which they have primary concern. Thus, for example, we speak of particle theories in physics, mathematico-deductive rote learning theories, and personality theories. We must keep in mind, however, that nature does not always run paral-

lel to these rubrics, certainly so in the case of psychological phenomena. Hence theories frequently cross distinct boundaries in psychology, as evidenced by the increased popularity of the concept of generalized behavior theory. Illustratively, the intimate relationships among cognitive, perceptual, and personality determinants of complex behavior have increasingly become a matter of concern to psychologists in the past decade (Klein & Krech, 1951; Bronfenbrenner, 1953). Much of our current research bears the imprint of this awareness.

One attribute of some psychological theories, as they develop, is their tendency initially to have a relatively circumscribed focus insofar as content is concerned. As a theory is found to be valuable in a given area two consequents may be observed. First, further differentiation of the "home" area is attempted, and second, the perimeters of the theory are steadily pushed out so as to probe its more general utility in the exploration of phenomena not originally encompassed by it. A good illustration of the latter type of development may be found in the area of learning theory. Hull's mathematico-deductive theory of rote learning (Hull, Hovland, Ross, Hall, Perkins, & Fitch, 1940) was followed by a much broader and more comprehensive theory of learning (Hull, 1943). The underlying theoretical notions were extended first to the area of social learning and imitation (Miller & Dollard, 1941) and, later, to clinical and personality-related phenomena (Dollard & Miller, 1950).

Accordingly, when today we use the term personality theory (Hall & Lindzey, 1957), we may be referring to at least two distinctly different types of development. On the one hand there are those theories, such as Hull's, which trace their origins to other content domains, but which have subsequently moved in the direction of becoming more general theories of behavior (Hull, 1952) with substantial applicability to problems of personality. Secondly, there are those theories such as psychoanalysis which have their roots in the personality domain. If the latter type survives, there is the likelihood that it too, to a greater or lesser extent, will move expansionistically in the direction of including a broader range of content. Potential relevance to the phenomena with which we are concerned, rather than its mode of genetic development, should be the prime factor in judging the usefulness of a theory.

Basically, albeit generally, the purpose of a theory is to augment the systematic accumulation of knowledge within its domain of concern. The utilitarian value of a personality theory may be judged by the extent to which it accelerates the observation of relevant relationships in nature bearing on the understanding of human personality. Emphasis on the

word systematic reflects the view that scientific progress requires more than a mere collection of empirical facts; it requires abstraction and ordering of interrelationships among variables. Secondarily, a theory, in addition to its generating properties should have incorporative qualities. That is to say, it should be able to subsume known and relevant facts within its structure. Theories which prove to be incapable of incorporating important empirical findings require modification or revision.

Another attribute of theory is its focusing nature. Human behavior is largely complex behavior; the pool of phenomena and interrelationships which could be studied is infinite. Theory helps us to make educated guesses about where we should profitably be focusing our research efforts. Doubtless some low-level theory is implicit merely in the act of choosing a problem to investigate; on the other hand more formal and explicit theory frequently proves to be a time-saver and a more efficient way of adding to knowledge.

A "good" theory, to invoke a value judgment, is one which can be verified, i.e., one from which a high proportion of derivative predictions may be confirmed by empirical findings. Other things being equal, a "good" theory is also one which encompasses the maximal number of events and relationships on the most parsimonious basis—i.e., with the smallest possible number of basic assumptions (in this case as regards the functioning of human personality).

In summary then, the prime virtues of personality theory are those of *systematic generation* of testable propositions, *incorporation* of known empirical facts in its domain and *focusing* of research interests to relationships of maximal relevance.

Applications to Disability

Realistically, when we come to the area of disability and rehabilitation it must be said that we are lacking in inclusive personality theories which meet the foregoing attributes in a fully satisfactory way. Presently, perhaps the most systematized set of theoretical constructs relevant to disability lies in the extension and elaboration of Kurt Lewin's field theoretical approach (Lewin, 1935, 1946; Barker, 1948; Dembo, Ladieu, & Wright, 1952; Barker et al., 1953; Meyerson, 1955; Dembo, Ladieu & Wright, 1956; Wright, 1960). It may be useful to examine several relevant concepts growing out of this Lewinian framework, each of which seems to have the quality of being a potential organizing principle for concrete research investigation.

The first of these is what Barker (1948) has described as the *under-*

privileged position of the disabled; more recently this has been called *inferior status position* by Wright (1960). The term physical disability implies deficit in physical function. This deficit and restriction of function may be objectively great for some, for others it is relatively small. To whatever extent, the disability may take on the quality of a barrier which impedes free locomotion in the direction of positively valenced regions of the individual's psychological life space. These regions will vary from person to person. For some they may involve exclusion from cherished vocational or educational objectives, while for others participation and achievement may be blocked in sex-social or athletic activities. In this sense there is an important parallelism between the psychological situation of the disabled person and that of the racial or religious minority group member. The particular inaccessible regions in the latter instances may be quite different, and may take such forms as exclusion from hotels, resorts, advanced professional schools, and political office, but the common element remains. Something beyond the individual's control—his physique, his name, his appearance, his skin color, becomes either directly or indirectly a barrier blocking access to positive goals. This happens directly when because of actual physical limitations or externally imposed restrictions locomotion is prevented; it happens indirectly when because of the prejudicial and intolerant attitudes of the dominant majority, the disabled person or the minority group member becomes so insecure or self-derogating that free locomotion cannot be ventured.

Inferior status position, by definition, is something which virtually all disabled individuals experience, though certainly in varying intensity. If it does not come about as a result of thwarting due to the inability to achieve a desired goal, then it may result from the discriminations and negative attitudes of the nonhandicapped majority. There are many different ways in which the individual can respond to the perception of being in an inferior status position. He may repress or deny, he may attack, he may "identify with the aggressor," he may seek substitute gratifications, to cite but a few. If the barrier shows any promise of permeability, he may try to locomote to positively valenced regions by probing it (e.g., a light-skinned Negro trying to "pass"). Some of these we recognize as healthier types of adjustments than others; some may be healthier for particular individuals—these relationships are not yet very well understood. But, if we can grant the descriptive meaningfulness of the concept of inferior status position, a number of interesting problems are posed for the personality theorist. Some of the more challenging of these would

have to do with an attempt to understand how personality variables or patterns of variables, comprising a style of adjustment, relate to the perception of an inferior status position. Illustratively, to what extent is one's reaction governed by his tolerance of ambiguity, his perception of authority, or the position of the particular need being thwarted in his personal hierarchy of needs? How does style of adaptation interact with personality characteristics as a determinant of the effects of prolonged exposure to inferior status position? Regrettably but realistically we must anticipate that we shall be living for some generations in a society which will continue to provide ample fuel for the perception by many that they are in underprivileged positions. This is, to a considerable extent, a problem in the social psychology of attitude modification. We may expect from prior attempts to modify prejudicial attitudes, that straight educational methods will be of limited value. However, the problem, notwithstanding its obviously heavy societal component, is not *solely* a social one. We need to understand why individuals differ in the extent to which they perceive a standard objective situation as restrictive and derogating, and why some individuals are overwhelmed by this, while others adjust quite comfortably. Hopefully we can make some good starts in trying to understand these problems by turning our attention to relevant personality variables.

A second important psychological concept described by Lewin, seemingly with considerable relevance for understanding the behavior of the disabled is that of *overlapping psychological roles* or *marginality*. Like the preceding notion of underprivileged status, this concept too is seen as a generalized one. An overlapping psychological situation is one which requires two sets of behavioral determinants simultaneously. As an example, an adolescent who is expected to paint the house or put up storm windows (adult role) but at other times is reminded that he is too young to have the family car or to stay out until midnight (child's role) is likely to find himself in a position of psychological marginality. Overlapping situations may be considered to exist along a continuum based on the extent to which the sets of behavioral requirements are either congruent or noncongruent with each other.

Physically disabled individuals are, perhaps more often than other groups, predisposed toward interfering, antagonistic, and excluding roles (Meyerson, 1955). This is so because the disabled are, by their disability, by their reactions to their disability, by social attitudes, and by their perception of social attitudes, cast into the role of inferior status position.

On the other hand the disabled person simultaneously lives in a world of the dominant nondisabled majority. For many, quite frequently the lines of demarcation between normality and disability may be fuzzy, and the disabled person may have difficulty in making the judgment of what he can or cannot properly do. He is thus, more often than others, placed in a situation of psychological marginality.

There are several unfortunate behavioral possibilities toward which he may gravitate in an effort to reduce this uncertainty. In some instances denial or rejection of the disability may follow, and the individual may strive to behave as a physically normal person. In other cases the characteristics of the disability may be exaggerated, and the individual falls back into a caricatured disability status. We may conceive of either of these types of adaptations as responses to single isolated events, or as chronic lifetime styles of reducing the ambiguity of marginality. In an extreme statement of the potential dangers of the latter possibility as it applies to excluding roles, Meyerson (1955) states: "If a person, because of his own forces or induced forces, is impelled to strive for a goal that is unattainable because of ability or social barriers, the constellation of behavior commonly referred to as psychological maladjustment will occur."

In general, the preferred resolution for this problem is for the handicapped person to capitalize on behavioral possibilities that are open to him, rather than seeking endlessly to achieve an inaccessible role. How this desirable end may be achieved is a more challenging problem.

The generality of this concept of overlapping roles is evident—so evident in fact that when Barker et al. (1953) undertook its delineation in the psychological literature some years ago, it was presented in the context of adolescence rather than disability. Other examples are legion—the lower-upper with great wealth striving to achieve an upper-upper status, the Jew trying to merge into the non-Jewish world, etc. As a result of this generality cross-fertilization of knowledge to and from other areas may justifiably be anticipated.

A third basic concept considered to have particular applicability to the understanding of adjustment to disability is that of *new psychological situations,* described in terms of three basic properties. Their directions are unknown, which is to say that the individual is unaware either of the precise location of the goal or the means by which it may be approached. Valences are simultaneously positive and negative in the sense that entering the goal region is both attractive and frightening. And, finally,

perceptual structure is unstable, since the location of the goal may change with changes in the individual's position and his approach patterns. A new psychological situation might be illustrated by the foreign student, relatively ignorant of our folkways and customs, coming to an American University, or by a blind person who has learned to travel a specific route from his house to the store, only to find one day that the route is blocked by a sawhorse because workmen are repaving the street.

On the basis of each of the above properties of new psychological situations, derivations are made. If a situation is one in which directions are unknown, then behavior will be uneconomical and will be characterized by wandering, probing, exploration, and trial and error. The individual may vacillate between an extreme cautiousness and responsivity to minimal cues, and a contrasting extreme, shot-in-the-dark type of response which involves radical moves and gross errors. Finally we may expect frustration with its consequent behavioral disruptions and emotionality. As a result of the simultaneous perception of positive and negative valences, conflictual trends will be instigated, and approach-avoidance behaviors may ensue. The individual will move forward and retreat as the perceptual balance shifts from one direction to the other. Once again the individual will be impelled to cautiousness, with consequent behavioral manifestations which are consistent with his particular style of life. On the basis of the property *perceptual structure unstable,* the major expectations would be that of vacillating behavior as well as heightened suggestibility and dependency.

This intriguing formulation is perhaps spelled out more completely than any of the others at the level of actual behavioral predictions. The concept *new psychological situations* certainly has applicability to a wide variety of situations outside the orbit of physical disability. Most germane, however, is the fact that disabled individuals, more so than many others, frequently find themselves in such situations. As Meyerson (1955) says, "Physically disabled people inevitably live on a sociopsychological frontier, where some of the chief satisfactions of life are to be found in the unknown region beyond the frontier." This is so for several reasons. The disabled person is, in general, likely to have a less well differentiated experiential background, *ergo,* less clarity with respect to the necessary sequences to achieve desired goals. Furthermore the disabled person, because he is lacking some specific culturally required function, may be unable to structure the new situation. He may be unable to dance, to swim, to mix martinis, or whatever, and any of these lacks may place him in a

new psychological situation at unpredictable moments. Finally, new situations may develop for the disabled person because of his stereotype value to others in varied social settings.

The consequences of new psychological situations, although their seriousness would most certainly be conceded to vary as a function of the potency of the situation, are stated as follows: "If a person enters a new psychological situation, frustration, conflict and the emotionality and behavior disruption that accompany frustration and conflict, will occur. *There are no exceptions.* It is true for adults as well as for children. It is true for the physically normal as well as for the physically handicapped" (Meyerson, 1955). At first blush this statement may appear to be a generalized prediction. Closer scrutiny, however, points to the possibility of a misleading tautology. The rub seems to be that we are lacking an independent definition of new psychological situations. One observation made in this regard is pertinent—viz., "psychological newness is not equivalent to physical newness" (Meyerson, 1955). This certainly suggests that the construct is viewed phenomenologically rather than in terms of objective environmental conditions. If there can be no independent external definition of new psychological situations, one wonders whether what has been suggested as the inevitable consequence of such a situation is nothing more than its definition. In this respect, the system may be closed. Quite probably, there are no immutable psychological consequents of new psychological situations as defined objectively or externally. The concept, if meaningful, must be mediated by the individual's perceptual and cognitive functions. If this is so, there is ample room for personality theorists to go to work around the central issue of: "Why is it that some individuals, disabled or nondisabled, perceive many situations as 'new psychological situations' whereas others do not?"

As we have noted earlier there is a good consensus at the present time, based on clinical observation and limited experimentation, that attempts to predict behavior directly from physique or disability are likely to fail or, at best, to meet with extremely limited success. The types of adjustment or the styles of life that we find in blind individuals, in deaf individuals, in orthopedically disabled individuals, are as varied as they are in nondisabled individuals. There is no certain prior way of knowing that *because* of a given difference in physique or a disabling change in physique a given psychological adaptation or behavior will be the automatic result. Maladjustments or emotional difficulties following disability, if and when they occur, relate to some type of mediating perceptual

organization or change in organization within the individual. Basically then, disability becomes handicap to the extent that an idiosyncratic phenomenological filtering eventuates in a particular type of perceptual organization in the individual. On the basis of this type of consideration we may understand the well-established observation of good adjustment in some individuals with objectively debilitating disabilities and quite poor adjustment in some individuals with objectively minimal disability or only minor variation in physique. It seems essential that we look carefully at personality theory and to basic research in the area of perception and personality if we are to hope to be able to spell out in more concrete detail how such important individual differences in adjustment come about. What personality theories or constructs do we now have which may help us to understand the development and functioning of these perceptual organizations? How may perceptual organizations underlying maladjustive behaviors be modified in various personality configurations? Granted that there are such things as underprivileged positions, overlapping roles, and new psychological situations, what personality characteristics (*a*) predispose to vulnerability for each, (*b*) govern styles of coping behavior, and (*c*) point to the procedures of choice in a rehabilitative effort, designed to overcome the negative effects of these factors?

The foregoing three concepts in no sense exhaust possibilities even within this single framework. Wright's recent volume (1960) and Dembo's earlier work (Dembo et al., 1952, 1956), although they slice the melon in significantly different ways, represent a rich source of potentially fruitful theoretical concepts. Illustratively there are the notions of *coping* vs. *succumbing* orientations to disability both by disabled people and by the nondisabled "observer," and *expectation-discrepancy,* which is a type of level of aspiration index reflecting the difference between expectations about behavior and adjustment, and actual behavior and adjustment in the disabled. Expectation-expectancy is governed by such factors as *"spread,"* a type of negative halo whereby the individual sees a delimited disability as affecting much broader segments of his physique and personality, *perceptual constriction due to anxiety,* and the *requirement of mourning,* referring to the tendency of some individuals to see themselves as *unfortunate ones,* because of a high degree of dependence for their security, on physique. Dembo et al. (1956) have written extensively about one of these factors—*mourning.* Mourning, in the context of disability refers to a shock reaction to physical impairment which is viewed in much the same way as we would think of bereavement follow-

ing loss of a loved person. Such a reaction is to be expected following the trauma of impairment. Dembo's penetrating analysis of acceptance of loss identifies some of the necessary conditions for overcoming the effects of mourning. Principal amongst these are the *enlargement of one's scope of values, containment* of the effects of disability (i.e., avoidance of the spread phenomenon), *subordination* of physique, and *transformation from comparative values to asset values* (comparative values are those emphasizing loss and inferiority and their immutability, while asset values recognize and accept the objective nature of the loss, and find ample gratification in nonimpaired attributes and qualities).

Collectively, the foregoing interrelated concepts provide us with a good deal of food for thought. They reflect the heaviest saturation of theoretical notions with focused implications for disability currently available on the psychological scene. How adequately these notions will meet the test of time may ultimately be judged on the basis of the evaluative yardsticks for theory, which we described earlier. For the moment we can only say that they appear to be potentially promising insofar as the vital criterion of research generation is concerned. At the same time, however, we would emphasize that they may be limited by their focus on situational determinants as opposed to individualistic ones. In this respect, from the point of view of the personologist, they represent, at best, a starting point.

Lewin's framework aside, superficial scanning suggests that there are concepts from a variety of other theories, which may also be usefully applied to the area of disability. Among these latter orientations one with seemingly direct applicability to disability is *body-image theory.* Paul Schilder (1935) wrote extensively in this area some several decades ago; more recently Fisher and Cleveland (1958) have extended the theory and its derivative research. The concept of body-image, determined by the particular style of life of a given individual, refers to "physiological schema of interior parts of the body versus exterior parts of the body." Some of these concepts have already been successfully applied to the prediction of adjustment to rehabilitation; their potential applicability to the area of disability is substantial.

Psychoanalytic theory (Freud, 1938, 1943, 1949, 1959; Fenichel, 1945; Rapaport, 1951), a work-horse in any area of personality, is not without concepts of considerable promise for the area of disability. We may expect that concepts such as *ego strength, ego functioning, types of ego control,* and *balance of psychic forces* may be usefully investigated in our

efforts further to understand adjustment to disability. Similarly it is evident that psychoanalytic notions about the nature and function of the *ego-defense mechanisms* (e.g., sublimation, repression, denial, compensation, identification with the aggressor, fixation, regression, etc.) have already made important inroads in writings by professional specialists about disability. Once again it is not that the foregoing concepts have unique meaning for disability; to the contrary, they have evolved in the framework of understanding problems of adjustment, neurosis, and psychopathology. However, disability requires adaptation! These concepts have been usefully applied to adaptive processes in other contexts. As such they give promise of providing important leads from presently established knowledge as well as important cues with respect to more targeted future investigation guided by our theoretical conceptions of disability. Another related and promising concept which some consider to be central to the entire field of disability is that of *dependency*. Thus it has been said that "there is almost no fundamental study of the physical and psychological make-up of people that contributes to this tremendous thing that will make or break our society, . . .—this thing we call dependency" (Switzer, 1959). Psychoanalytic theory has a good deal to offer in the concrete researching of this area. It may be a pervasive quality of disabling conditions that they impose, at least a certain amount of, dependency on individuals (other conditions also do, to be sure). We need to know much more about the nature of healthy and pathological dependency and factors which produce exaggerated dependency, or denial of "justifiable dependency." Quite beyond the old stand-bys of ego-defensive behavior, anxiety, ego strength, etc., less extensively treated notions such as body cathexis, secondary gain, body narcissism, and castration anxiety may be especially fruitful to explore in this context. The latter concept, for example, has been invoked with increasing frequency as a dynamic explanatory principle with respect to the understanding of negative attitudes toward disabled people in the dominant nondisabled majority (Braverman, 1951; Schauer, 1951).

Within the larger family of psychoanalytic theorists, Adler (1917, 1925; Dreikurs, 1948) is well known for his early interest in physical disability growing out of his beliefs about organ inferiority. Although Adler's views later moved more and more in the direction of a psychological rather than a physical concept of inferiority, his notions still have relevance for the latter. In particular the Adlerian concepts of compensation, style of life, and fictive goals may warrant further attention. Less well

known, the analyst Meng (1938) has written several papers on psycho-
dynamic aspects of disability. More specifically his interests have been fo-
cused on the interesting problem of the positive gratifications of disabil-
ity including the role of secondary gain. Among the neoanalysts, Horney's
(1937, 1945) conceptions with respect to the idealized image and com-
peting character trends are ones which may merit consideration in the
context of disability.

We may also expect to find useful concepts in modern *self-concept
theory,* or *phenomenology,* as described in the writing of Carl Rogers
(1942, 1947, 1951) and Snygg (1941) and Snygg and Combs (1949).
The central view that self-concepts and self-regarding attitudes are prime
determinants of behavior and the heavy emphasis on the internal frame
of reference of the perceiver may each represent a helpful approach to
the study of the perceptual impact of, and subsequent adjustment to, dis-
abling conditions. Similarly, the phenomenological analysis of the effects
of threat upon behavior, because of the likelihood that disability will be
seen as a threat to many individuals who experience it, may prove to be
a helpful source for the generation of relevant and testable hypotheses.
There are a series of specific formulations within the framework of self-
concept theory (Rogers, 1951) which are highly amenable to experimen-
tal test with direct applicability to problems of disability. Thus, there
are the notions that (*a*) maladjustment may be described as a function
of the magnitude of the discrepancy between self-concept and ideal self,
(*b*) experiences of the organism are either assimilated, ignored, or de-
nied as a function of the structure of the self, (*c*) tension exists when the
individual denies significant sensory and visceral experiences to awareness,
(*d*) experiences inconsistent with the self structure are perceived as
threats and elicit defensiveness, and (*e*) acceptance of self is a prerequi-
site for acceptance of others, etc. In this sense, self-concept theory seems
to be a fertile "idea-mill"; moreover, some start has been made in the
development of tools and techniques for the assessment of pertinent vari-
ables in this sphere (Wylie, 1961 ; Crowne & Stephens, 1961).

Phenomenological theory, along with other basic theories of personal-
ity (H. A. Murray, 1938; Goldstein, 1939; Murphy, 1947), places con-
siderable weight on the central significance of perception and the frame
of reference of the perceiving organism. It follows from such an empha-
sis that the specific research field of motivational aspects of perception
and personality (Bruner & Postman, 1949; Klein & Schlesinger, 1949;
Blake & Ramsay, 1951; Witkin, Lewis, Hertzman, Machover, Meissner, &

Wapner, 1954; Eriksen, 1954; Allport, 1955; Adams, 1957; Jenkin, 1957; Goldiamond, 1958) may be one with considerable implications for the field of disability. Time and time again we are reminded that we cannot predict behavior directly from disability, and that individual perception is the critical mediating factor. Physical disability, for the affected person, can, as suggested earlier, very readily take on the quality of one great big projective technique. Hence we must be alerted not only to matters of perception of veridicality, but also with the crucial significance of personality determinants in perceptual processes. Though not without controversy, there is nevertheless an ample base in the larger psychological literature pointing to the role of factors such as personal needs, personal values, threat to the organism, expectancies, etc., in the perception of stimuli which are lacking in clarity. Some of our most fundamental conceptions of disability emphasize its lack of clarity, its ambiguity, its predisposition to unstable perceptual structures. This, indeed, seems to be a research area with important potential for disability and rehabilitation both at the level of what we already know, and what we may wish to find out.

Not necessarily as an outgrowth of self-concept theory, but nevertheless related, the areas of *interpersonal relations, objectivity of understanding,* and *empathy* also merit consideration in the context of their research potential for problems of rehabilitation (Dymond, 1948, 1950; Bender & Hastorf, 1950, 1953; Gage, 1953a, 1953b; Bruner & Tagiuri, 1954; Cronbach, 1955; Gage & Cronbach, 1955; Tagiuri & Petrullo, 1958).

The problem of *motivation* has been accorded very extensive consideration by rehabilitation people (Rusk, 1959). Predominantly, however, the focus has been around the important practical issue, phrased by Wright (1960) as, "How do we get a person to do what he is supposed to do and to learn what he is supposed to learn?" Accordingly, research emphasis in this area has been directed to such concrete objectives as utilizing motivational resources, improving patient motivation, etc., with an eye toward increasing the effectiveness of rehabilitative procedures. The centrality of motivational concepts in much current psychological thinking is reflected by the increasing heed which they are paid in the study of basic psychological processes such as perception and learning. More and more frequently the interactive aspects of cognitive, conative, and perceptual elements are being stressed as generalized behavior theories evolve (Klein & Krech, 1951; Bronfenbrenner, 1953). Interest in problems of motivation both at a theoretical and a research level is ex-

tensive and longstanding. At the present time there is a substantial core of basic knowledge which can profitably be examined in terms of implications for rehabilitation psychology. Additionally, there are numerous motivational concepts, as for example, *level of aspiration* (Lewin, Dembo, Festinger, & Sears, 1944), *need achievement* (McClelland, Atkinson, Clark, & Lowell, 1953; McClelland, 1955), *need affiliation* (H. A. Murray 1938), *expectation-discrepancy* (Wright, 1960), which may well fit the study of the psychological situation of the disabled.

Finally, we may look hopefully to the extensions of learning theory to the area of personality (Dollard & Miller, 1950; Mowrer, 1950) as a potentially useful framework for research on many problems of disability and rehabilitation. To a very considerable extent central learning theory concepts such as counter conditioning, social imitation, extinction, discrimination learning, and punishment have already been applied with profit to the kindred process of psychotherapy (Shoben, 1949; Bandura, 1961). Similarly there have been widespread recent extensions of operant conditioning principles to the area of behavior modification (Krasner, 1955, 1958; J. M. Rogers, 1960). But quite beyond this practical potential of reinforcement principles in the actual rehabilitative sequence, learning theory has demonstrated usefulness in the relevant spheres of conflict for which it has provided an intriguing theoretical model (Miller, 1951; Murray & Berkun, 1955), anxiety (Farber, 1954; Child, 1954; Taylor, 1956), and motivation (Brown, 1953; Farber, 1955), each a domain of considerable significance in a personalistic approach to the study of disability.

Overview

In view of some of the convictions expressed in earlier parts of this section there may be a paradoxical component to the notion that there is a need for a more comprehensive theory of disability. Such a specific theory might be required if there was systematic evidence of known psychological differences between the disabled and nondisabled. On the basis of presently available observations and empirical findings there is little reason to believe either that such evidence is available, or that it is likely to be established in the foreseeable future. Overlap rather than difference between disabled and nondisabled groups seems to be a governing principle (Cowen et al., 1961). Accordingly, the term comprehensive theory of disability may most profitably be construed to reflect the need for integrated theoretical concepts which will contribute to the

greatest extent possible, to the fostering and promotion of research on the types of psychological situations toward which disabling conditions may be predisposing. The charting out of such situations will be an important forward step; it will be insufficient, however, until such time as we can specify the personality variables and constructs which govern individual differences in the perception of such situations, and individual differences of manner of coping with or adjusting to them. When each of the foregoing types of understandings has been achieved, we will have laid a firmer groundwork for a more effective applied science of rehabilitation in the future.

Although the likelihood that good theory will prove to be a very useful catalyzer of research on disability and rehabilitation is considerable, this view in no sense excludes the possibility of important progress in the absence of such theory. To the contrary, there is every reason to believe that personologists actively involved in research in their own areas of interest and expertise can potentially accelerate our understanding of disability and rehabilitation through a willingness to examine critically their own work in terms of its potential applicability and extensibility to problems in the former area. Perhaps the guiding question here would be: *What types of presently available knowledge and fact in the fields of personality and motivation, and clinical psychology can be meaningfully applied to the study of disability and rehabilitation?* Certainly, this should be as important an issue to the psychologist as it would be for the housewife to look in the cupboard to see what is in stock before going on her weekly shopping expedition. And, although it is a question which can be most properly and broadly answered through long range and focused inventory-taking within the professional literature, we may nevertheless hope to profit from preliminary consideration at this time.

Specifically implementing the foregoing orientation, considerable emphasis has been directed to two concrete research areas: psychological stress and research in psychotherapy, in terms of their potential usefulness, by extension, to the fields of disability and rehabilitation. Although there is a good deal of "face validity" applicability for each of these areas, it would be self-deceiving to overlook the fact that a major basis in their selection for more careful scrutiny resides in the current active participation of subgroup members in them, as research workers. In the case of psychological stress which has already been studied in the context of bodily insult (Janis, 1958), the bridging link is the willingness to view disability as a potential stressor stimulus. From there, more extended, if

crude, theoretical speculations as well as research suggestions evolve. The significance of research in psychotherapy is justified primarily by a striking structural parallel between the processes of psychotherapy and rehabilitation. The following sections of the chapter are directed to these two areas, under the rubrics "A Conceptual Model" and "The Psychotherapy Parallel."

A Conceptual Model[3]

Earlier, the view was developed that a proper and primary focus of the personologist should be directed toward an attempt to understand the regularities, involving personality-motivational variables, which govern the transformation of a given environmental event into an internal state of the organism and, subsequently, the transformation from that organismic state into a behavioral act or response. This hypothesized sequence is depicted schematically in Figure 1.

Code E	(M_1)	(0)	(M_2)	B
Events $\rightarrow$	(1st Mediation) $\rightarrow$ $\downarrow$	Internal State $\rightarrow$	(2nd Mediation) $\downarrow$	$\rightarrow$ Behavioral Response
	Propositions a b c • • • • n	(Gratification)	Propositions a b c • • • • n	
Observable	Inferred			Observable

Figure 1. Schematic analysis of the behavioral sequence.

Events (E) occur and following these events organisms behave or show some type of response (B). An experimenter or an observer sees only these events and their behavioral consequences. Whatever else takes place must be inferred. Sometimes, as we know, a given event is followed, allowing for some molarity in observation, by virtually the same types of behavior in most organisms. Reactions to disaster situations such as earthquakes, fires, floods, tornadoes, etc., might well exemplify this principle.

[3] The point of view developed in this section does not necessarily represent a unanimous group view. It is recognized that the phenomena of interest could well be conceptualized in different ways.

We may assume that such situations involve activation of largely similar need systems across many individuals. In that sense we might infer, within the schematic framework provided, that the situation itself is strongly predisposing to interorganismic comparability with respect to the internal states and mediational processes which are triggered off. Hence in analyzing such situations we deal primarily with situational effects rather than person-by-situation interactions, and we are largely in the terrain of social psychology rather than personality theory.

On the other hand there are those events which are followed by perhaps as many genuinely different responses as there are organisms responding. Although these latter situations may or may not be more complex than the preceding category in an objective sense, by definition they are likely to involve very intricate person-situation interactions and are thus certainly more complex from the standpoint of the personologist. We have described the two most extreme and limiting cases. Between these extremes there lies a vast array of stimulating events which are followed neither by exclusively communal nor exclusively idiosyncratic responses, but rather by a relatively greater or lesser number of common responses across individuals. Observation and experience to date point strongly to the conviction that disability as an event has considerable individuality of response following it. Therein lies the role of the personality psychologist.

We may define as a behavioral cycle, or behavioral act, for any organism the sequence commencing with the occurrence of an event and terminating in an act of behavior. In between these two observable anchor points, we may hypothesize for more complex human interactions the existence of two mediational processes. The first of these (M_1) refers to the process by which an event becomes transformed into an internal organismic state. The state of gratification, or the state of stress, exemplifies two important but quite different types of such internal states; doubtless, there are others as well. These internal states are inferred via certain indicants—motoric, affective, endocrinological, physiological (Basowitz, Persky, Korchin, & Grinker, 1955; Grinker, Korchin, Basowitz, Sabshin, Persky, Chevalier, & Board, 1956; Lazarus, 1961; Lazarus & Riess 1960). The particular nature of the signposts varies as a function of different states. Once given, whatever internal state, the second mediational process (M_2) refers to the manner in which that particular state becomes transformed into an act of behavior. As we study behavioral situations involving human organisms, we may observe that a substantial propor-

tion of these are complex ones, in the sense of involving differential mediational processes in different individuals. Implicit in what has been said up to this point is the belief that there is likely to be a rough gradient operating such that the greater the communality of responses to a given event across individuals, the more prepotent are the situational determinants presumed to be, whereas the greater the variability of responses across individuals, the stronger is the person-by-situation interaction, and inferentially the greater the necessity to focus on the two hypothesized mediational processes.

The somewhat abstract and global framework suggested up to this point may be narrowed and exemplified through a discussion of the problem of psychological stress.[4] It is of some importance to note that this area has been rife with semantic confusion in the past. Accordingly it may be appropriate to pause momentarily to clarify present usage, less in the sense of trying to argue for a right way of conceptualizing as opposed to a wrong way, and more in the sense of communicating how words will be used here. Perhaps the nub of the issue is the fact that a substantial variety of terms have been used to describe what, on the surface, appear to be either identical or markedly similar processes (e.g., stress, anxiety, threat, and frustration). By and large these terms, and others like them, have been used to describe three somewhat different classes of phenomena: *stimulus conditions,* referring to a set of environmental circumstances with demand value for certain types of responses; *intra-organismic states,* referring to an internal condition of the individual inferred by certain operationalizable indicants; and *response characteristics,* referring to actual observed behaviors following stimulation. There has been some characteristic preference in the literature for the use of the varying designator terms as illustrative of one or another of these classes of definitions, but such usage has by no means been consistent. For example, the term anxiety has had primary usage as an internal state (Grinker et al., 1956; Basowitz, 1958) or response concept (Taylor, 1951, 1953, 1956; Mandler & Sarason, 1952; Farber, 1954; Sarason, 1960), whereas the term stress has more often been used either to refer to an internal state (Selye, 1950; Lazarus, Deese, & Osler, 1952; Selye, 1956; Lazarus &

Riess, 1960; Lazarus & Speisman, 1960; Lazarus, 1961) or to stimulus conditions (Glixman, 1949; Cowen, 1952a, 1952b; Grinker et al., 1956; Basowitz, 1958). Similarly Child and Waterhouse (1953) use the word frustration explicitly to refer to stimulus conditions, while C. R. Rogers (1951) uses the word threat to refer both to stimulus conditions and to an internal state. Unfortunately, the net result of all this is that ostensibly similar conditions are multiply labeled, and it becomes extremely difficult to determine whether we are in fact dealing with different processes or with different terminological preferences. As a case in point the preferred term for the impinging predispositional environmental conditions would be *stressor* for Selye (1956) or Lazarus and colleagues (1952, 1960, 1961), *stress* for Basowitz (1958) and Grinker et al. (1956), *frustration* for Child and Waterhouse (1953), and *threat* for C. R. Rogers (1951). To carry the semantic molasses one step further, the same term *stress* would refer to the internal state for Lazarus and colleagues (1960, 1961) or Selye (1956), and would refer to the stimulus conditions for Basowitz (1958) or Grinker et al. (1956). Apart from a plea for terminological arbitration, one can do little more here than to proclaim by *fiat* the nature of present usage. We shall follow Selye and Lazarus, using the term *stressor* to refer to the predisposing environmental conditions, much as we use the broader term event (E) in the proposed model, and *stress* to refer to the internal state of the organism, as we have in our model used the more generic concept of organismic state (O).

Having thus defined stress, it becomes important to turn our attention to the indicants by which the presence of a stress state may be inferred. Historically, there has been a tendency to avoid coming to grips with this basic issue; this failure weakens substantially the foundation upon which experimental findings can be interpreted. By and large, the preferred resolution has been to proclaim the existence of stress states with a minimum of independent verification. This, in effect, means that the experimenter or observer is operating on the assumption that stressor equals stress. The infinite variability of the human organism's response to stressor events belies the tenability of such a position. While it may have some justification in group situations with strong stressors, its usefulness with any given individual is at best dubious. This issue is discussed at somewhat greater length elsewhere (Lazarus, Deese, & Osler, 1952; Lazarus & Riess, 1960). Techniques are required for independent assessment of the presence of the stress state. Attention has recently been directed to this important problem from two independent sources (Grink-

er et al., 1956; Lazarus & Riess, 1960; Lazarus & Speisman, 1960; Laz-
arus, 1961). Although the resulting formulations are by no means iden-
tical, there is sufficient basic agreement in emphasis between the two to
enable us to extract a meaningful set of common-denominator indicants.
For example, both Lazarus and Grinker et al. speak of the *affective* indi-
cators of the internal state. Whereas Lazarus has focused primarily on
self report measures of affect such as the Adjective Check List (ACL)
(Nowlis & Green, 1957; Nowlis, 1960) and anxiety scales, the Chicago
group has assessed affective components by means of ratings of patients
during interview and observation. Lazarus identifies also certain types of
motor expression as indicative of the presence of the stress state. These
indicants may be manifested grossly as motor discharges (i.e., tremors),
postural changes, gestural adaptations, change in formal properties of
verbal productions, or more specifically, at an experimental level, in terms
of muscle tension, as might be reflected, for example, through continu-
ous electromyographic recording. This latter technique has been widely
used by the McGill group in its studies of certain types of psychiatric
conditions and reactions in psychotherapeutic interviews (Shagass &
Malmo, 1954). The Chicago group also recognizes the importance of
motoric indicants of the stress (anxiety, for them) state, but group these
with measures such as heart rate and respiratory rate under the broader
category of *physiological* measures. On the other hand physiological or
visceral expression constitutes a third group of measures for Lazarus, re-
ferring to a group of indices involving biochemical and tissue reactions
activated by the autonomic nervous system, as well as the activity of the
adrenal medulla with respect to the secretion of adrenalin and noradren-
alin, and their physiological consequences. For the Chicago group the
third and last system of indicants is what it calls its *hormonal* measures.
For example, plasma hydrocortisone and serum-bound protein iodine are
studied as indices of adrenocortical and thyroid activity, while urinary
hydroxycorticoids are examined as an additional indicator of adrenal cor-
tex functioning. There is an avowed preference by the Chicago group for
focusing on physiological and endocrine functions as significant variables,
which are assumed to be relatively closer to the central state, and an es-
chewing of more peripheral functions. Accordingly, pituitary and hypo-
thalamic functions and their immediate neighbors in the sequential chain
are preferred to more peripheral measures such as GSR, pupil size, and
bowel peristalsis.

It may thus be seen that there is a substantial amount of overlap in the

broad types of measures taken by each of these investigators as indicants of the presence of the internal state, even though there is some individuality of preference in the choice of the specific measures to be used as exemplars of the broader classes of indicants.

Let it be emphasized that despite this much agreement about the manifestations of the stress state, the state itself should be considered to exist along a *continuum of intensity,* rather than as an either-or proposition. Moreover it should be made clear that individuals may show very substantial differences in their unique forms of giving evidence of the existence of this state. If, as Lacey has demonstrated (Lacey, 1950; Lacey & Van Lehn, 1952), we may expect, at best, fairly low interrelationships across varying autonomic indices (GSR, heart rate etc.), we may further expect that there need be little or no correspondence between varied affective, endocrinological, autonomic, and motoric signposts. Depending upon the particular individual's style of life and preferred coping patterns, it is quite conceivable that we might find affective expressions emphasized to the exclusion of motoric or physiological ones in one person, with the converse true in another. Thus, it follows that any single measure or any single grouping of measures, if applied to a large enough sample of individuals, is likely to yield an incomplete picture of the extent of the stress state. This methodological snare has given rise to a more recent emphasis on combinatory measures and maximal arousal scores (Lacey, 1959).

Since both the amount of stress which an organism experiences and his ability to cope with stress may be important elements differentiating psychological health and pathology (Lazarus, 1961), the potential stressor quality of disability merits consideration. This latter implies reaffirmation of a faith espoused earlier: namely, that while there shall undoubtedly be no unique personology of disability, the distinctiveness of this field, if any, will ultimately lie (*a*) at the level of the stressors (events) toward which disability predisposes and (*b*) in the particular nature of the interactions between personality and motivational properties of the organism and such situational determinants.

Formally, the notion of stressor is comparable to the notion of event as depicted in Figure 1, while the concept of stress formally parallels that of internal state. Perhaps the major distinction between the concepts event and stressor is that the latter is a special case of the former, which in a sense prejudges that there is a high likelihood of a particular type of transformation to a particular internal state: stress. In principle, the more

inclusive formulation of event-internal state has the virtues of flexibility and breadth, not available in the stressor-stress conceptualization. A stressor is merely a particular type of event for which there is a substantial probability of a consequent state of stress in the organism. Since it may be useful in elucidating the present formulation to think of the stressor potential of disability, we shall preserve the concept for the time being, at the same time disavowing any implication of necessary or universal stressor attributes for all disabling conditions.

Regardless of whether the issue is pursued at the more general or the more specific level (and we shall be pursuing it at the more specific level primarily because it is relatively simpler and more parsimoniously exemplified that way), a crucial question for the personologist is the following one: "By what means does a stressor (event) become transformed into stress for any given individual?" We know for a fact that many standard environmental circumstances will be stressful for some individuals and quite nonstressful for others. Why is it, for example, that some students are overwhelmingly stressed by examinations in general or some examinations in particular? Why is it that some paraplegics give evidence of being virtually continually in a stress state, whereas others adjust reasonably comfortably and are apparently not experiencing any significant amount of stress? Such questions inevitably focus on the individual process of transition from environmental event to internal state— from stressor to strong stress, to moderate stress, or to no stress. In the notation of our earlier scheme, we are dealing with the initial mediational process (M_1). For disability in particular or for psychological science more generally, determination of the nature of this transitional process is a central issue. It is important that we know why it is that some deaf, some blind, some orthopedics appear continually to be in a stress state, whereas others with objectively comparable, or more severe, disabilities do not. Even assuming a stressor potential for disability, it clearly does not always eventuate in a stress state for all or most disabled individuals.

We do not as yet have clear-cut answers to this significant type of question. At best all we can hope to do is to offer a series of educated guesses— call them hunches or hypotheses—as to where we may most profitably look to find answers. We may start with the view that the determinants of the initial mediational process are to be found primarily in the organism's system of needs, goals, values, and motivations. In elucidation of this faith we can state a series of "if-then" propositions, subject to veri-

fication by empirical test, which would hopefully provide a basis for prediction as to whether a stressor (event) will be followed by a stress state in the given individual. As a type of paradigmatic and core theorem, it is proposed that *to the extent that a given stressor (event) blocks the gratification of a need, to that extent it is likely that the stressor will eventuate in the internal stress state.* Implied in this proposition is the notion that the stressor must be pertinent to the thwarting of an active need system in the individual, if stress is to result. This proposition can be applied to problems of disability at a cross-sectional or longitudinal level. For example, if a paraplegic condition thwarts the gratification of an important sexual need in the individual, the disability will constitute an ongoing source of stress for him. Or, in a less long-range sense, if this same patient because of his disability was blocked from going to a dance on Saturday night, then the events of being invited to the dance and declining to go might well be followed by stress. In human organisms there may be a multiplicity of needs which can either be satisfied or thwarted, motives that gain expression or are denied expression. These may involve one's aggressive impulses, his sexuality, dependency, autonomy, affiliative or achievement needs, to mention but a few. It is, in essence, the fact of multiplicity and variability of human needs and motives that underlies the potentially idiosyncratic response of organisms to events and even to "stressors." Failure of an exam in chordate anatomy may produce a powerful stress state in a student with a strong need for achievement who had been planning to go on to medical school; the same stressor may result in less stress or no stress for the student who is merely in college to avoid working as a clothing salesman in his father's store and for whom failure of this exam does not particularly jeopardize his remaining in college.

Needs exist at varying levels of centrality in the organism's psychic economy. Some are all consuming and powerful; others are peripheral and evanescent. This gives rise to a second proposition bearing on the stressor-stress transformation. That is to say, *the stronger the need which is being thwarted by a particular stressor event, the more intense is the state of stress likely to be.* Parenthetically, Lazarus and Speisman (1960) propose that psychological stress is primarily a function of threat to the self or to basic social relationships. Hence one might expect that thwarting of the need for a corned beef sandwich as a consequence of the stressor event of finding that the delicatessen is closed for the day is likely to be followed by considerably less stress than the stressor event of fail-

ing one's doctoral qualifying exams and its attendant impingement on powerful need systems involving achievement, status, affiliation, and others. The example cited could be applied equally effectively to an instance of disability. Once again it should be emphasized that there are significant individual differences in the hierarchical structure of need systems. Accordingly, achievement needs, or sexual needs, or affiliative needs may occupy a very prominent and central position in one individual's need economy, and a rather peripheral one in another's. Take as an example, leg amputation. For an individual whose adequacy needs have been well met by his successful functioning as a jeweler, such a loss of limb is less likely to eventuate in stress than for the person whose entire adequacy is closely bound into his success as a professional football player. For the latter, although the occurrence of the accident would very probably be an immediate source of acute stress, it is quite conceivable that if his adequacy needs were sufficiently important and sufficiently closely tied in with his athletic skills, that intense stress would be experienced subsequently, without any disabling accident, merely as a function of the waning of his athletic prowess. More broadly speaking, this general type of dynamic may be fairly central to the emergence of involutional psychotic reactions. The basic proposition, however, is that if a given stressor thwarts a basic or central need in an individual, more intense stress will result than if a secondary or peripheral need is blocked.

Still another proposition articulating the possible relationships between events and the occurrence of stress states may be expressed as follows: *a need-blocking event is more likely to be followed by a stress state to the extent that alternative gratifications are unavailable*. To return to the earlier example of the person who was left in a minor state of stress because he could not get his corned beef sandwich, let us assume that the need for the corned beef sandwich was a specific (and for that person, preferred) expression of a broader hunger need. Let us now assume, avoiding chauvinism about food preferences, that as he walks on a little further, he finds that there is an attractive pizzeria which is open. The pizza then becomes an appropriate substitute gratification for the corned beef sandwich, and satisfies the hunger need. The relatively mild stress state is thereby dissipated. Similarly, a given disability may thwart the specific satisfaction of a need. An orthopedic impairment, for example, may thwart an adolescent's need for affiliation which, prior to that time was fulfilled largely through athletic participation and Boy Scout camping activities with peers. In that sense it will be stress-producing. However,

to the extent that substitute gratifications, e.g., stamp collecting or any of a number of intellectual activities can fulfill the blocked affiliative needs, to that extent will the stress be reduced. In a sense we are here speaking of the constructive potentialities of certain types of compensatory activities for the disabled. The matter of availability of substitute gratifications is not only of theoretical import to the spelling out of the stressor-stress transformation, but it is probably of considerable practical significance in rehabilitation and retraining. The latter must be geared not only to physical rehabilitation but also to the provision of alternative responses which will allow for otherwise thwarted needs to receive gratification. It is inherent in what has been said, that if a basic need may be fulfilled through one and only one channel, and that channel is rendered inaccessible by a disabling condition, then the likelihood of an on-going level of intense stress is considerable.

Another type of if-then statement that can be advanced is the proposition that *a given stressor is more likely to be followed by stress, if the prior and/or concurrent stress characteristics of the organism are elevated.* We are here specifying a kind of straw-that-breaks-the-camel's-back principle. Again, to use our example of involutional reactions, the individual may for some years have been subject to stressor events which were stressful because they blocked love and acceptance needs. The stressor potential of cessation of menstruation, and the consequent removal from the reproductive arena, may with this sort of backdrop, convert to a debilitating stress state, as a kind of final and emphatic exemplar of the thwarting of the underlying need attribute. It should be noted that this particular formulation can be viewed both in cross-sectional and in longitudinal terms. In the former sense it would refer to the notion that the stronger the momentary matrix of bombardment by need-thwarting stimuli, the more intense will be the stress resulting from an increment in need-thwarting inherent in a new event. Consider, for example, the stressor potential for a patient recovering from poliomyelitis who learns that he will be confined to a wheel chair for six months longer than had been anticipated, thus thwarting basic autonomy needs. Shortly thereafter this same patient finds that he cannot maneuver his wheel chair into the hospital elevator, something that has happened on two or three previous occasions with a minimal ostensible reaction. This time, however, he becomes acutely upset over the same occurrence and gives evidence of the existence of a strong stress state. Quite probably we would be witnessing here the cumulative impact of prior psychological assault, which reaches threshold

as a function of a seemingly ordinary circumstance. This cross-sectional view would accommodate the oft-observed phenomenon, within or outside the sphere of disability, of an event quite innocuous to the external observer followed by a disproportionately strong reaction, suggestive of an intense stress state.

Similarly, on a longitudinal basis, it may be reasoned that the more extensive the individual's history of exposure to need-thwarting and stress-inducing events which he has been unable to resolve adequately, the greater will be the likelihood of a new need-thwarting event producing stress. This facet of the broader proposition, though admittedly extremely difficult to test, is not inconsistent theoretically with the notion of differential "frustration tolerance" among individuals (Rosenzweig, 1938, 1944; Jahoda, 1958), and may help us to understand better the differential reactions of two comparably disabled persons to a given environmental occurrence.

Clearly the foregoing formulations illustrate rather than exhaust the varied and complex determinants of what we have labeled our M_1 mediation, i.e., from environmental event to internal state. It could, for example, be proposed that the more rigid the psychic structure of the organism, the more intense will be the stress which follows a need-thwarting event. Or, spilling over into more cognitive functions, in terms of Brunner's theoretical notions (1951), the proposition could be advanced that the greater the prior expectancy of the O that a given event or network of circumstances will be need-thwarting, the greater is the likelihood that stress will result.

Let it be clearly underscored that our decision to focus on the transformation from stressor event to the particular internal state of stress was determined more by the wish for relative simplicity and clarity of exposition through the medium of delimiting than by theoretical completeness or by correspondence to nature. Stress is certainly a very important internal state; however, equally clearly it is not the only internal state which organisms experience. To pick a sharply contrasting one, it may be possible to describe the internal state of gratification. Like stress, this state would also be describable in terms of characteristic affective, motoric, physiological, and endocrinological indicants. It is quite conceivable that mediation from event to gratification may be understood in terms of a series of propositions which are structurally similar but directionally different from those governing mediation from event to stress. Illustratively we might think that events become gratification when relevant needs are

satisfied, and they become more gratifying as more central or basic needs are involved, etc. As a first approximation it might be anticipated that the state of gratification is differentiable from the state of stress in terms of the organism's inclination to maintain rather than to modify present circumstances in the former as contrasted with the latter.

The proposed framework provides one potentially attractive bonus. In building its explanation of the transformation from event to internal state around the specific patterning of needs in the individual's psychic organization, it makes no prejudgment about "automatic" consequences of environmental events. Hence it preserves an essential flexibility, which allows it to account for uniform reactions of organisms as well as highly individualized reactions to given environmental occurrences. If all people, or virtually all people, are stressed by an earthquake or the fear of atomic holocaust, it is because that event universally or nearly universally thwarts needs to remain alive. On the other hand, given a comparable degree of orthopedic defect in two people, one may remain relatively unaffected because the disability does not block the gratification of basic needs, whereas the other may show all the effects of long-term and severe stress and maladjustment, because the disability jeopardizes fundamental needs for achievement, succorance, and autonomy.

As stated, the formulation can also account for the clinically interesting phenomenon of secondary gain or derivation of gratification from one's disability. Thus Hanks and Hanks (1948) observe that: "The disfiguring scar in Dallas becomes an honorific mark in Dahomey." Similarly, one of our major liquor companies carries an advertisement featuring a bemedaled, distinguished Prussian-type military figure, with a duelling scar on his face. Cosmetic defect, here, is the event (disability) with which we are dealing. Such an event, if it occurs in an attractive young female may be acutely stressful because it thwarts her need to be popular, to be accepted, and perhaps to be loved romantically. By contrast, the same disability in our Prussian colonel may be a source of extreme gratification because it is the symbol by which his needs for status, prestige, and admiration gain fullest recognition. It follows that disability as an event will lead to gratification rather than to stress, to the extent that it serves to meet a basic need of the organism.

While it is probably accurate to say that the hypothesized states of stress and gratification cover a very substantial portion of the effective continuum, it is nevertheless quite conceivable that internal states other than these two exist, or perhaps that differentiable variants of these two

rather comprehensive states, each with unique discriminanda and correlates, may ultimately prove to be identifiable. One wonders, for example, whether the Lewinian concepts of new psychological situations and overlapping roles may not in the last analysis represent special instances of stress states which follow, given a particular need structure in the individual, environmental events toward which disability may have special predispositional value.

There remains at this point some need to consider, albeit sketchily, the second of the basic transformational processes (M_2)—that from internal state to actual behavior. Given an internal state, be it stress, gratification, or whatever, organisms will behave in very different ways, following it. (The stress state, however, as suggested earlier, may differ from gratification in terms of a fundamental built-in push toward its reduction or alleviation.)

As an illustration of the M_2 problem, two individuals, each of whom has experienced a recent coronary of comparable gravity, may be advised medically that they should continue to work, but that they should avoid strenuous activity. Let us assume that this information because it jeopardizes common needs produces in each an internal state of stress. Subsequently one of the two individuals deals with the situation by withdrawing completely from all physical activity and by becoming inactive and lethargic. The other, by contrast, not only continues to engage in physical activity but does so at a pace which exceeds by far his pretraumatic level of functioning. Why? This concrete, hypothetical situation exemplifies effectively the problem of mediation from internal state to behavior. Intrinsically, the M_2 transformation is less crisply approached than is the M_1 transformation. This is so because we are here dealing not with a variety of paths that converge to a single end product, but instead with a given state or genotype which can be followed by a virtual infinity of behavioral responses. Although the transformation itself is an extremely vital one since it has important practical as well as theoretical implications for the psychology of rehabilitation (i.e., how can we promote "good adjustment" following disablement?), it follows that it will have to be approached somewhat more globally than its predecessor and that we cannot at this stage hope to be able to set up specific prediction formulae for the multiplicity of adaptive behaviors which are potentially accessible to human beings.

As it was our hunch that the mediation from event to internal state involved primarily the needs, goals, values, and motives of the organism,

so is it our belief that the transformation from internal state (stress) to behavior is governed primarily by his learning, coping styles, and adaptive processes. It is of course clear that the person's actual behavior following the occurrence of a given internal state is limited by his response potential. Thus, no matter how strongly the severe quadriplegic may be instigated to physical aggression, such behavior will be impossible as a result of the extreme physical insult, in most situations. Similarly, it is evident that behavior following stress will be restricted by the available "solutions" in the environment or, to phrase the matter otherwise, by the accessibility of a path of movement for the individual in the field. It might well be, for example, that the stress generated by the thwarting of a paraplegic's need for heterosexuality would be amply dissipated by a responsive female; however, the reality of his situation may also be that such an interested party is not available. As a further extension of this notion it follows that available responses must in themselves either be nonstress producing, or at least likely to produce a less debilitating stress state than the one which the person is seeking to escape. As an illustration, a blind person may be lost in a new and strange part of the city en route to a social gathering, and the momentary thwarting of his affiliative need may induce a state of stress. Whether or not he asks someone for directions and help in seeking his destination may depend upon whether such an act would be more thwarting to his basic need for autonomy than not going to the affair would be to his need for affiliation.

Within the broad framework established by these limitations it may be proposed that *the individual in seeking to reduce stress will tend to behave in a manner which has been successful or positively reinforced in prior stress-mastery attempts.* The specific pattern of responses undertaken will vary markedly across individuals in terms of their particular coping mechanisms, adaptive processes, or styles of life in interaction with the demand qualities of the particular situation. A college student, as a consequence of the stress state induced by the potential thwarting of his achievement needs as a result of an important examination, may engage in certain minor ritualistic behaviors while awaiting his examination grades. He then learns that he has passed the exam. When the next similar situation develops, the ritualistic behaviors are repeated in response to the heightened arousal. Some individuals learn to respond to stress by withdrawing, others by attacking, others by denying, etc., as fairly generalized response characteristics. In other instances quite differential responses are observed as a function of the particular attributes of the situ-

ation. An individual may seek to cope with a stress state resulting from thwarted adequacy needs by withdrawal from authority figures and by hostility to peers or subordinates. Reactions to current stress states must then be viewed in terms of the individual's earlier established modes of response to such situations. These response tendencies may originate in the early, deeply rooted, and sometimes quite unconscious learning of the organism, and must be taken into account in any attempt to predict specific behavioral responses following stress.

It may also be hypothesized that part of the susceptibility of an individual to stress in the first place, and part of his difficulty in coping with the stress state when it occurs, may be his lack of awareness of just what responses are appropriate to the situation. To the extent that this is the case, such circumstances are potentially modifiable through a variety of direct and subtle re-educative procedures. Lazarus and Speisman (1960) observe that the demonstrated stress-producing quality of a film involving an ostensibly mutilative and gory pubertal subincision procedure among aborigines, may be due to the absence of techniques for coping with such a situation. By providing built-in sound tracks offering up tailor-made defense systems either of denial or intellectualization, the stress-producing quality of the film stimulus as measured by physiological and behavioral indices is dramatically reduced.[5] Such findings appear to have vital implications for rehabilitation practice as well as for psychological theory. They suggest the potential merit of seeking out realistic and emotionally meaningful coping techniques which can be provided for the disabled person in the rehabilitative sequence.

Another dimension of some significance in charting the M_2 sequence is the rigidity level of the individual (Chown, 1959; Luchins & Luchins, 1960). Here it may be argued that *the greater the fixity of the organism's response to the internal stimuli of the stress state, the more likely is there to be maladaptive behavior.* The importance of this proposition stems in part from the fact that rigidification seems to be one significant sequel of psychological stress (Luchins, 1942; Beier, 1951; Cowen, 1952a, 1952b). And while it is true that a rigid response may sometimes be a situationally appropriate one, it is more generally the case that flexibility is a keynote to adaptation (Maslow & Mittleman, 1941; Alexander, 1945; Jahoda, 1958). Hence the lower the basal rigidity index of the individual, the

[5] The Lazarus and Speisman interim report deals primarily with the rationale for their work and the method being utilized. The findings noted above and others will be elucidated in reports of the research now in preparation (personal communication from Professor Lazarus).

greater may be his potential for hitting upon an appropriate mastery response following the stress state.

In our earlier discussion of the nature of the stress state, emphasis was placed on this likelihood of differential manifestations by different individuals. This fact now requires examination in the context of the problem of adaptation to stress. It is reasonable to expect that there is a fundamental interaction between the particular mode in which the stress state is manifested and the specific nature of the situation in which the individual is involved or the task which he must perform. For Individual A, who is a jeweler, it will make a good deal of difference whether his characteristic manifestation of stress is through motor discharge and tremor, or cautiousness and compulsivity. The former will involve task-irrelevant and maladaptive responses; the latter, perhaps quite adaptive responses. If a disabled person who because of need thwarting is vulnerable to an on-going stress state with a dominant affective manifestation of withdrawal, such an individual might learn to function more adequately as a sign painter than as a salesman. It follows from what has been said that a given person with distinctive manifestations of an internal stress state and distinctive coping styles may function quite effectively in some situations, but totally ineffectively in others. Hence we may require a higher order of assessment with disabled individuals, of characteristic modes of adapting and responding, so that more effective matching of the organismic "givens" can be made to appropriate tasks and situations.

In a much more general and inclusive manner this point was eloquently phrased during the actual proceedings by one of the conference participants (RSL):

> There is a simple but useful theme that has run through our discussions—for each of us in a somewhat different way: As personologists it is crucial that we concern ourselves not only with the attributes of the person . . . how they come about and how they function momentarily . . . but also with the relationships between these factors and specific aspects of the person's life circumstances. We all seem to be saying that a proper research design must not only examine the external conditions of life, whether you conceptualize them in terms of perception, of phenomenology or otherwise, but also the personality and need structure of the individual. A design which does one or the other alone is going to miss. The design which focusses on the person only as a trait system will miss the circumstances of his life and the relevance or irrelevance of different circumstances. Similarly the design which is confined to external conditions, assuming all people to be alike, and thereby missing variations in need structure, the capacity to be stressed, and coping mechanisms which different individuals bring to the situation, will also tell only half the story. Either one, by itself, would miss the central point.

The present primary objective has been that of seeking to sketch out the major perimeters of a particular frame of reference which may represent a fruitful way of conceptualizing the place of some personality and motivational variables in a theory of human behavior. Notwithstanding the concerted effort to keep problems of disability in focus, it is recognized that the formulation is a more generalized one which may be applied to a variety of other situations within the broader purview of psychology. But, if our underlying assumptions about disability are sound, this is as it should be. It is also well to emphasize that hypotheses, hopefully testable ones, have been offered—not facts. No brief is made for their sanctity and inviolability. As is so often the fate of such propositions, some may stand; others will not and will have to be replaced. They are intended as spurs and catalysts to research rather than as doctrine. It will be viewed as a worthwhile contribution of the formulation if it organizes and accelerates experimental investigation and contributes to the generation of additional testable hypotheses. Perhaps more than anything else an attempt has been made to point to a new path and to rough out the first and presumably more important steps along that path in the hope that by following it we may gain information which will be of general interest and value to the psychology of motivation and personality while at the same time having serious implications for our understanding of the fields of disability and rehabilitation.

The Psychotherapy Parallel

There has been a good deal of controversy in recent years concerning the definition of rehabilitation (Seidenfeld, 1956; Wright, 1959). Basically this has had to do with the breadth of the phenomena and processes which rehabilitation should properly encompass. The controversy will not be perpetuated in this chapter. As a working definition we are quite willing to accept Seidenfeld's (1956) view of rehabilitation as a "process of assisting the individual with a handicap to realize potentialities and goals, physically, mentally, emotionally, socially, and economically." Psychotherapy, on the other hand, has been defined in a manner which has proven to be somewhat less controversial (Snyder, 1947, p. 298):

> . . . a face to face relationship in which a psychologically trained person is consciously attempting by verbal means to assist another person or persons to modify emotional attitudes that are socially maladjusted, and in which the subject is relatively aware of the personality re-organization through which he is going.

It is probably not that there are inherent differences in the operationaliz-ability of the two processes; instead, psychotherapy has perhaps had a bit more time to achieve a delineation of its nature. Whatever the status of the two definitions, this much seems clear: rehabilitation is not psycho-therapy! It would probably be a challenging exercize in concept forma-tion to try to list the ways in which the two approaches are different, even overlooking the intraprocess variants in each. At the core, however, is the fact that rehabilitation is, by and large, much broader and more comprehensive, in the sense of being targeted to a wider sphere of pa-tient activities and functions and of requiring the converging skills of diverse members of an integrated professional team. The foregoing con-trast is of the "more-or-less" rather than the "either-or" variety. It is sharpest in the case of a highly individualized treatment approach such as intensive psychoanalytic therapy with outpatient neurotics; lines fuse considerably more in the case of treatment programs for psychotic men-tal hospital patients, where psychotherapy may merely be one facet of a total milieu approach. Rehabilitation, then, is the broader concept. It is possible to conceive of psychotherapy as a special instance or type of re-habilitation; by contrast, we could not encompass the process of reha-bilitation within present definitions and conceptions of psychotherapy.

It is true then that there are important differences between rehabilita-tion and psychotherapy. However, if one's concept-forming powers are not exhausted by the delineation of such differences, it is also possible to find some common elements in the two types of undertakings. This must be the case if one is willing to accept the notion that psychotherapy is basically a special instance of the broader rehabilitative process. These similarities exist at several levels: functional, structural, and perhaps even historical. In terms of the latter, only time will tell.

An initial and basic aspect of comparability is that each process begins with a problem, difficulty, or deficit in an individual. The nature of this difficulty may be very different in the two situations. For example, the probability of deficit in physical functioning is characteristically of much lesser significance in psychotherapy than it is in rehabilitation. Further-more the motivation of the individual as regards his perception of a prob-lem and his willingness to accept help may also show systematic differ-ences across processes. Other things being equal, I expect that the latter two may be more explicit problems in rehabilitation. We cannot be sure about this in the absence of empirical data; we can only speculate. The common element, however, seems to be some disability, perceived or ob-

jectively defined, physical and/or emotional, which impairs the optimal effectiveness of the individual. The second aspect of the parallel involves the application of professional skills, knowledge, and techniques, as expressed in the interpersonal relationship with a professionally qualified individual or individuals, toward the end of striving to provide a situation in which the individual can be helped to increase the effectiveness of his functioning and/or his personal happiness. Once again there are very different ways in which this end may be approached, but we can regard the end itself as common to both processes. Additionally, we may note that the exchange of words and the formation of interpersonal relationships are at least to some extent inherent in each process. We believe that we know these elements to be very important in psychotherapy; we seem to have some unverified suspicions that they are also significant in rehabilitation work. And finally, for both processes there are concepts and criteria of improvement, sometimes explicit, all too often implicit, which serve as yardsticks by which the effectiveness of the procedures are assessed.

Historically, both psychotherapy and rehabilitation evolve from a clinical, service-to-the-patient mold. Modern-day clinical psychology is the product of two traditions: the psychometric, going back at least as far as Sir Frances Galton and well-rooted in the scientific psychological tradition of the late 19th century, and the psychodynamic, sired by Sigmund Freud, and almost exclusively clinical-observational by nature (Watson, 1953). Psychotherapy has grown primarily in the latter soil. Of the several professional groups involved in the clinical practice of psychotherapy, it has devolved primarily upon psychologists, because of their continuing proximity to experimentation and to scientific method, to provide the impetus for the research explosion in this field that has been almost exclusively a post World War II phenomenon (Rubinstein & Parloff, 1959). As psychologists came to participate more in psychotherapy, a goodly number became increasingly concerned with putting the process under the research microscope. This is not to usurp such activity as the exclusive property of psychology; rather it is to recognize the drive and leadership which our profession has exercized in this area. This research interest has generated changes in our concepts of training, marked advances with respect to design and methodology appropriate to the problems at hand, and most important, an ever-growing basic understanding of the process itself. The ratio of research articles as opposed to impressionistic case reports has increased rapidly, the discovery of promising

new leads has proliferated, and the establishment of major research cen-
ters and programatic research efforts has been rapid. Although gaps in
knowledge in this area are legion, the overall research effort now seems
to be on relatively firm footing and to be moving in healthy construc-
tive directions.

Psychologists today seem to be wetting their feet in the field of reha-
bilitation, as did their colleagues less than a generation ago in the field
of psychotherapy. Perhaps history will ultimately show a clear parallel in
the evolution of the two disciplines. We are, realistically, not at this time
as far along in rehabilitation. We are beginning, however, to sense the
importance of the underlying problems, to experience the curiosity to try
to understand them, and to look at the broader discipline of psychology
so as to know better where we may profitably learn, and how we may
usefully contribute.

But quite beyond this perceived historical parallel, there is a substan-
tial common core to the two areas. Rehabilitation research cannot, and I
hope it will not, follow blindly in the footsteps of psychotherapy re-
search. To do so would be stifling to the unique types of development
that are its potential. On the other hand, in its present infantile state
rehabilitation may profit considerably from a careful examination of psy-
chotherapy research, so that useful concepts, methodologies, and sub-
stance may become part of its available pool of ideas, and so that unnec-
essary errors are not repeated and blind alleys are not retraversed!

Up to this point psychotherapy research has been viewed as if it were
a homogeneous entity. Such is far from the case; in reality this undiffer-
entiated and broad term is no more than a global rubric for what, in fact,
is a complex hydraheaded monster with many very diverse components.
Some specific types of "psychotherapy research" bear far less relationship
to other specific types of "psychotherapy research" than they do to cer-
tain social psychological or psychopharmacological investigations. We may
expect this principle to be equally true with respect to research on the
psychological aspects of rehabilitation.

To date, the most popular brand of psychotherapy research has been
the so-called evaluation or outcome study. Reduced to its lowest common
denominator, outcome research is directed to the simple, straightforward
question, "Does psychotherapy work?" There are, of course, innumer-
able potential variations on this basic theme. For example, "Is one method
of therapy more effective than others?" "Does a given method work more
effectively with one type of patient than it does with another?" "Can we

predict beforehand those patients for whom a method will or will not be effective?" etc. In the final analysis, outcome research must focus on a comparison of some aspect(s) of "pre" and "post" therapeutic behavior.

As Edwards and Cronbach (1952) have pointed out, such research can be conceived of at many levels. *Technique* research merely involves the development of instruments which are likely to be useful in later substantive data-gathering procedures. Fundamentally this is a preparatory step for good outcome research. *Survey* outcome studies represent a highly empirical type of research, which involve the collection of substantial amounts of data for many variables, and subsequently seek to tease out relationships. We might, for example, compare a sample of successful and unsuccessful outcomes, in terms of seeking to locate which of 50 or 75 potential background information factors clearly differentiate the criterion groups. Such research rarely is capable of helping us to identify causal relations; at best it can perhaps help us to formalize and add a modest amount of dignity to our clinical hunches. Because of its orthogonality to any guiding or underlying theory, and its dependence on specific sample attributes, results deriving from it are likely to be highly ephemeral. If ever the need for cross validation was in order, it is in this type of research. Lacking such, published reports are more likely to clutter than to contribute. A third type of outcome research is called *applied* research (fundamentally, most outcome research is applied research). In such investigations we seek to get answers to delimited practical questions as a basis for administrative decision. Thus we might wish to know whether intensive analytic therapy, or supportive analytically oriented therapy, appears to be more effective, by whatever agreed upon criteria, with male peptic ulcer patients between the ages of 25-45. This type of investigation may profit from limited use of experimental design. The final and perhaps most highly developed form of outcome research, *critical* research, derives from theory and characteristically profits from the judicious application of design. One of the focal considerations in critical research is identification of variables considered relevant to outcome, and the building of these variables, particularly the so-called organismic ones, into the design. To cite a concrete example, we may be concerned with the relative effects of Method A and Method B on change in status with respect to a criterion hostility measure, and may find that there are no differences, on a group basis, in pre- and posttherapy measures for either method. It is theoretically conceivable, however, that one method resulted in a decrease of the manifest hostility in patients with initially high hostility, and an increase of manifest hostility in initial low scorers

on this dimension, while the other method did exactly the opposite. Such a result would have important theoretical as well as pragmatic interest. However, if we merely used group pretest vs. posttest scores the results would be obscured, since there would be no evident overall change from the beginning to the end of the experiment. If, alternatively, we had specified initial status on the hostility dimension, and had used a factorial type of design, we would readily detect an interaction between the organismic hi-lo hostility dimension and the therapy method employed.

The key methodological problems in outcome research fall into the areas of sampling and design, control, and criteria. Each deserves some brief consideration because of its presumed relevance to research in rehabilitation. In the period preceding formal psychotherapy research, as is true of many other treatment methods, a favored type of publication was the case study. Such data can only be highly suspect as the basis for establishing scientific fact. Quite apart from the distortions caused by the observer's enthusiasms and biases, it is always difficult to know whether a single successful application of a treatment method represents one success in one trial as opposed to one success in 100 trials, or to what extent it reflects the idiosyncratic matching of two individuals rather than an illustration of the effects of a general approach with a given type of patient. Clinical case studies can be quite useful in the overall process of expansion of knowledge. Certainly, observations leading to such reports can comprise a fertile source of hunches and hypotheses. A distinction, however, must be made between the *generation* and the *scientific testing* of clinical hypotheses. The former can come from any source—unsystematized observation, clinical case studies, dreams, mystical and divine visitations, etc. Doubtless clinical case studies are among the better of such sources. However, the hallmark of the scientific method is *controlled* observation and the proper scientific testing of clinical hypotheses requires that this condition be satisfied (Marx, 1956).

At a somewhat more comprehensive level than that of the case report, one skeptic in trying to phrase a more general law has observed: "In the history of treatment methods initial evaluations tend to be more favorable than later ones" (Thorne, 1952). What he had in mind here is the tendency to fail to observe the full meaning of negative results because of ego-involvement and bias, the use of weak design and premature techniques of analysis leading to false conclusions, and the ever-present danger of capitalizing on chance because of a particular run of fortunate results.

Another aspect of the problem of design is the oft-disregarded prob-

lem of follow-up. The hope of most remedial procedures, including both psychotherapy and rehabilitation, is that their effects will be both more general than the situation in which they occur, and lasting in time. In this regard, evaluation should not terminate at the end point of the procedure, but should properly follow the course of progress over a period of time in order to determine whether positive effects are durable ones.

A second central methodological problem in psychotherapy outcome research is that of criteria (Berg, 1952). This is an extraordinarily knotty issue with important philosophical and cultural aspects as well as the obvious psychological ones. Criteria of success are intimately bound up with the problem of the aims and goals of the particular remedial procedure. In psychotherapy research, we may quite readily think in terms of different objectives in different types of cases. To cite one broad distinction, the aims and objectives of intensive therapy are likely to be quite different from the goals of supportive therapy. Perhaps the only single common objective that can be specified for all therapies (and, I suppose, for rehabilitative procedures as well) is the platitude of achievement of optimal health in any individual for his given set of circumstances (Cowen, 1955). The rub, particularly in the case of psychotherapy research, however, is that we are referring largely to mental health, and we are as yet lacking in consensually validated judgments regarding the nature of good or poor mental health (Shoben, 1957; Scott, 1958a, 1958b; Jahoda, 1958; Smith, 1959). Such concepts are, in the last analysis, value judgments. We know, as an established fact, that there are vast cultural differences, and class differences within a culture, with respect to the nature of these judgments. In this regard, rehabilitation may have a distinct advantage over psychotherapy, since evaluative criteria for the latter tend so often to include attributes which elude ready definition, and challenge our resourcefulness to the utmost in matters of assessment. In the case of rehabilitation, many of our evaluative criteria tend to be self defining, operational, and grounded in behavior. Recently Zax and Klein (1960) made a plea for use of behavioral criteria in the evaluation of psychotherapy. It seems to me that such an objective has greater promise of achievement in rehabilitation research.

One final area of methodological concern in outcome research has to do with the problem of control. Fundamentally we need controls in order to be able to establish the conclusion that changes following the active use of a remedial approach are in fact due to that approach rather than to any one of a host of other potentially contaminating variables.

In the psychotherapy context, the principal contaminants are the spontaneous remission effect, the effects of concomitant environmental change, the placebo effect, and specific vicissitudes of assessment instruments, as for example the frequently observed phenomenon of regression of test scores in a re-test situation (Eysenck, 1952; Thorne, 1952; Rosenthal & Frank, 1956; Frank, 1959). Several of these either do not apply or are diluted in the context of evaluating the effects of rehabilitation procedures. Illustratively, unlike many psychological problems, physical disability, in degree if not in kind, does not have the quality of waxing and waning; hence the potential contaminations of spontaneous remission and improvement from concomitant environmental change are less pronounced. Perhaps the most important potential application of some modified concept of control to the area of rehabilitation outcome evaluation lies in the area of exploratory partial restriction of some of the many streams of service in the hope of identifying the inert from active components of the global procedure. Since ethical concerns regarding withholding of treatment are likely to be profound (Frank, 1959), this type of experimentation is more likely to take the form of comparison of several methods, rather than the treatment vs. no treatment approach frequently used in psychotherapy research.

It is not likely that the basic advances either in psychotherapy research or rehabilitation research will come from evaluation studies. However, such studies do have a kind of practical, immediate information-feedback value. If the results are positive they are reassuring and they confirm what we have already accepted by a doctrine of reasonable belief. Good results are valuable to clinicians as a basis for expanding the market of their product. They are useful to administrators in annual reports and in fund soliciting campaigns. They help us to provide answers for our Eysencks. Certainly clinicians as well as college sophomores can derive benefit from good reinforcement schedules. The questions examined in the framework of outcome research are the obvious, burning ones ever-confronting the combat practitioner. Accordingly there can be little doubt that this type of research will continue at a reasonably steady pace. A sizable percentage of the research suggestions from the Princeton conference reflect this need. Hopefully we may at least be able in the field of rehabilitation, to by-pass certain of the less promising types of outcome study as a result of awareness of the false starts and dead ends in the area of psychotherapy research. To the extent that outcome research is to be undertaken, we may hope that it will follow some judicious prior sifting of promising

theoretical leads, may avoid the unsystematized flailing at anything and everything which can conceivably be measured, and may avoid the methodological pitfalls in the areas of sampling and design, criteria, and control which characterized the "preschool era" in the development of psychotherapy research.

Both psychotherapy and rehabilitation are relatively complex types of interactions or processes. Each is characterized by a myriad of simultaneously interacting independent variables. Outcome research is, in the last analysis, of extremely limited value in helping us to pinpoint the *specific* variables or combination which have contributed to observed change following a remedial procedure. It is probably of some value to know that 60% of college counselees show improvement with respect to criterion A, B, or C, following therapy X, or that 60% of a paraplegic sample shows improvement on criteria X, Y, and Z following combined rehabilitation procedures L, M, and N. Yet there is little hope from such investigation of determining the sources of the change. Are they due to client age, sex, intelligence, anxiety level, rigidity, level of impairment? Are they due to the attitudes, techniques, skills, or orientation of the professional workers? Are the variables of length of the rehabilitative experience, or motivational status crucial? Or do the observed changes result from some combination of these and a virtually limitless host of additional variables? Regrettably we learn very little from outcome research, which will help us to understand how or why patients modify behavior. It will be primarily from an understanding of these latter types of questions that we may expect to find the building blocks for more effective remedial procedures in the future. Perhaps another way of phrasing the issue would be to say that the key to generalization is *understanding,* and that outcome or evaluative research, either in rehabilitation or in psychotherapy, holds relatively little promise for the realization of such an objective.

There is a second, basically different approach to psychotherapy research which may be more useful in terms of the goal of understanding, i.e., process research. In the broadest sense process research is directed to the question, "What is the nature of psychotherapy?" or, somewhat more specifically, "What are the major contiguities or causal sequences in the psychotherapy transaction?" Translated into terminology which may be somewhat more meaningful to rehabilitation psychology, we might ask, "What are the necessary steps by which an organism moves from 'mourning' (Dembo, Ladieu, & Wright, 1956), 'grief over object-loss' or 'de-

pression resulting from separation' (Schmale, 1958) to optimal func-
tioning and personal contentment within the framework imposed by his
disability?" and, perhaps subsequently, "What are the types of behav-
iors, interventions, and understandings which may facilitate this type of
transition?" In contrast to outcome research, where our focus is on dif-
ferences in pre-post measures, in process research we explore carefully the
events and sequences contained in the actual protocol or transcript of the
psychotherapeutic hour. In rehabilitation such work would require a rela-
tively faithful summary of all contacts that are part of the total experi-
ence. The drawbacks to process research in psychotherapy 15 years ago
are remarkably similar to the drawbacks to process research in rehabili-
tation today. Principal amongst these as noted by Auld and Murray
(1955) are: (1) *Transience of the data in the sense of our lacking reli-
able descriptions of the events of the process of rehabilitation.* Resolution
of this difficulty requires development of procedures for reasonably ac-
curate reproduction of the events of the transaction. Since rehabilitation
is a more comprehensive process than is psychotherapy, it is to be ex-
pected that its description will be at a more molar, inferential level than
is reflected by sound recording of the psychotherapy hour. (2) *Heavy
dependence of impressionistic appraisal since we have been lacking in
systematic frames of reference for data analysis.* This shortcoming is
remediable through the development of reliable measures of some of the
processes (steps, stages) which comprise the transaction. Every process
study requires a process measure. Impressionism (Watson, 1952) will be
overcome only to the extent that we can develop objective reliable meas-
ures of process (which, however, do not obscure the dynamic nature of
the events which go into it). This is clearly a methodological problem.
We are, at the present time, seriously deficient with respect to available
process measures which may be used to describe the stages of the reha-
bilitation sequence. (3) *Lack of available theoretical frameworks geared
to a meaningful description of the proceedings as they unfold.* This prob-
lem will not be solved overnight. Its resolution rests upon the emergence
of theoretical frames of reference which are geared to the understanding
of the phenomena of transition from mourning or grief over object loss
to effective healthy functioning.

Process research itself may be described in terms of several distinct
types. At the most primitive level there is the methodological study which
has as its simple purpose the development of one or more meaningful and
reliable measures of process. Such studies, perhaps drab in their own

right, represent the substrate on which more exciting substantive investigations are built. In a sense they open up a new area, as such careful investment at this stage is likely to yield rich dividends. Porter's work (1943a, 1943b) in developing a framework for classifying the events of client-centered therapy in terms of client feelings, client content, and therapist responses served as a basis for Snyder's later classic study (1945) charting the nature of nondirective therapy. Similarly, E. J. Murray (1956) has provided us with a framework for studying the nature of the learning theory approach to psychotherapy. Though these methodological studies are designed to develop useful instruments and techniques for the description of a phenomenon or a process, the measures are typically developed with an eye to the future and may be guided by anticipation of their potential for subsequent hypothesis testing. The field of rehabilitation appears to be sorely lacking in this type of methodological work, and development in this respect is a necessary prerequisite for increasing our understanding of the rehabilitative process.

A second level of process research is the so-called descriptive study, which might best be thought of as a hunch-formalizing expedition. Typically such a study is done conjointly with a methodological work, and is based on the analysis of a series of cases with respect to some relevant dimensions of process. Perhaps the highest order of process study is the theoretical (or payoff) type of investigation which seeks to identify cause and effect sequences or functional relationships integral to the therapy process. The theory in question may be a broad and comprehensive one at one extreme or, at the other extreme, simply confined to relationships between two variables. Illustratively we might be concerned with the problem of whether interpretation leads to insight or defensiveness or whatever else, presuming that appropriate measures of these processes were available. Hopefully, with the benefit of guiding theory we could be relatively more parsimonious and circumscribed in the questions we might choose to study through such investigations. Although there seems clearly to be a structural parallel for the area of rehabilitation, process research in this latter field is likely to proceed at a much more molar level than in psychotherapy research. We are likely to be looking for indicants of subordination of physique, broadening of value systems, reduction of the spread of disability phenomenon, change from comparison to asset values, and other occurrences which we believe, on theoretical grounds, are likely to be important in the transition from mourning and deprecation of self to effective functioning and positive self-regard.

Process-type research in rehabilitation, as it has been in psychotherapy, is likely to be complex, difficult, expensive, and time consuming. These practical limits notwithstanding, such work is essential to the goal of understanding. The latter is prerequisite to a generalized improvement of our effectiveness, and is a fundamental objective of scientific endeavor.

One final approach to psychotherapy research, the experimental analogue, will be discussed in terms of its potential usefulness for the study of research problems in the area of rehabilitation. An experimental analogue of psychotherapy is a "controlled laboratory situation involving two or more people, in which the behavior of one person (E) is designed along some relevant dimension(s) to simulate that of a psychotherapist, while in one or more ways the other person(s) is experiencing a feeling of stress, discomfort, or a 'symptom' which in some way approximates that brought by the patient to an actual psychotherapeutic situation. Primarily through the medium of verbal interchange, E seeks to relieve S's present difficulty" (Cowen, 1961). The need for an analogue approach derives primarily from the fact that research based on "live" psychotherapy is limited by the complexity of the process. Viewed in this light the major potential contributions of the analogue method may be summarized as follows: (a) more rigorous control of extraneous variables, (b) greater refinement of experimental design, and (c) greater breadth and precision of relevant criterion functions. Within the framework of an analogue approach it would be possible to study systematically the effects of pertinent patient variables, be they demographic or personality-related ones, therapist variables, patient-therapist combinations, and/or variations of method.

There are obvious limits to an analogue approach, even in the area of psychotherapy. Difficulties may be anticipated in the translation of as complex a human interaction as is psychotherapy to a laboratory paradigm. Hence the analogue researcher must be somewhat light-footed with respect to his generalizations. Analogue research is regarded as a complement to, rather than a replacement for, the more traditional approaches to psychotherapy research, as part of a concerted effort to achieve a fuller understanding of the process and continued improvement in its effectiveness.

In looking at the potential usefulness of the analogue model for the study of rehabilitation-related problems, limitations are also evident. One cannot deliberately impose disability on human subjects any more than one could impose neurotic cores. One can, however, simulate such con-

ditions in a modest way. Illustratively, Jervis and Haselrud's work (1950) on experimental blindness, and Meyerson's (1948) on experimental deafness are literal, if limited, paradigms of disability. Though the interest in these investigations was in the direction of observing and describing the nature of the reactions, it would be entirely feasible to examine the remedial effects of certain theoretically plausible ameliorative procedures upon the experimentally induced deficit states. In a somewhat broader and less direct sense, current experimental work in the area of sensory deprivation, now well established in the mainstream of academic psychology, may be viewed as an analogue of acquired disability. Additionally, recent advances in the use of operant conditioning techniques may also be profitably translated to the analogue context.

There are a number of naturalistic type situations which in many instances may be expected to arouse a set of perceptions and expectancies common with those engendered, in many, by disability. Each of these situations, whether it is the reaction of a child at the time of initial separation from the parent to go to school, or to camp, or because a new sibling is being born, or whether it is the reaction of an adult because of the serious illness or death of a loved one, may involve the common element of loss, grief, or separation, either potential or actual. And, although we may expect to find a wide array of individual differences in subjective reactions to such circumstances, we should at least be able to identify some people who, dynamically, are reacting as do many disabled individuals to the events of becoming disabled. We have not capitalized sufficiently on these real-life situations. They may, every bit as effectively as experimentally induced stress, constitute an appropriate starting point for investigation of approaches to optimal perceptual, attitudinal, and emotional change in the course of rehabilitation.

In summary, then, psychotherapy research has much to offer an emerging research program in rehabilitation. The present need is to pick and choose carefully, approaches, techniques, and methods which show promise of ready translation and usefulness in illuminating our understanding of the process of rehabilitation. To do so in a literal, slavish manner, however, would be dangerously constricting. Interestingly enough, there is another way of phrasing this point. In one sense rehabilitation research may be seen as we might actually view a person with physical disability. Relatively speaking, psychotherapy research may represent the dominant nonhandicapped majority. As the disabled person is likely to suffer from a denial-based attempt to behave as a nonhandicapped, so is

rehabilitation research likely to fall down if it simply apes what it is not. Rehabilitation research, too, can profit from the use of asset values as opposed to comparative values. It should not overlook contributions, when they are likely to be timesaving or helpful, merely because they are contributions from psychotherapy; in the last analysis, however, it must grow in its own unique and distinctive image.

Intellectually, though perhaps not emotionally, it should have been anticipated beforehand that the diverse problems of research in disability and rehabilitation were not fully to be resolved within the framework of our meetings. It may at least be hoped that some useful organizing, stimulating, and catalyzing sequelae will be observed in the foreseeable future.

Many of us approached the conference with the vaguely formulated belief that academic psychology might have some worthwhile contributions to make to its struggling but vigorous neonate of rehabilitation research. The events of the conference itself strengthen such a belief. And, as is true of many parent-child relationships, psychology may, if it looks carefully enough, learn a good deal from this particular offspring as it grows up.

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Some Implications of Social Psychological Theory for Research on the Handicapped

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T HE discussions of this work group dealt with the theories and analyses of social psychology as they seem to bear upon the phenomena of the handicapped and their rehabilitation. While many socially relevant aspects of the rehabilitation problem entered the conversations, only the four here described were selected for development.

In all instances, our analysis begins with some assumptions about the handicapped and about normal persons' reactions to them. While these assumptions seem reasonable to us, it must be admitted that they are often made without extensive or expert knowledge of the matter. The reader will understand, of course, that the subsequent theoretical analyses are no more valid than the assumptions on which they rest. In our judgment, research on these topics should begin with an examination of whether or not the initial assumptions are valid and a determination of the conditions under which they do or do not apply. Only after this preliminary study would it be reasonable to test the inferences we have drawn here, and then only for those conditions where the assumptions can reasonably be taken for granted.

Our concern is mainly with the physically handicapped, but we recognize that a physically handicapped person often suffers from multiple disorders including emotional and other psychological problems. The handicapped category is taken to include congenital cases and those resulting from postnatal changes, either gradual or traumatic. It also includes visible as well as nonvisible ones.

REACTIONS TO DISABILITY

Here we are interested in the question of how a person adjusts to the onset of an acquired handicap and the factors affecting this adjustment. Social psychology has important contributions to make to this problem because the adjustment process is greatly influenced by other persons, e.g., by their reactions to similar situations in their own lives and by their reactions to the newly disabled person. Much recent social psychological research indicates that evaluations of one's self and situation depend to a large degree upon comparison with others (Festinger, 1954). And, as we shall see, the handicapped person's reactions depend on his perceptions of his own power, the power of external agents, and whether or not they are friendly to him.

A useful concept for analysis of self-evaluation phenomena is that of comparison level (or CL) advanced by Thibaut and Kelley (1959) and derived from earlier concepts such as level of aspiration, adaptation level, and reference groups. The general point of view behind all these ideas is that the evaluations of one's self and circumstances are *relative*. How well off a person feels depends on with whom he compares himself. How fortunate he feels at receiving a certain salary depends on his past salary, his colleagues' salaries, and the like.

The CL for a given person is defined as the level of outcomes (payoffs, rewards, punishments, etc.) he experiences to be fairly neutral in value. It is the level of hedonic experience that he expects to receive, the level he finds to be minimally appropriate or reasonable. Better outcomes are experienced as *good* and are greeted with a certain amount of satisfaction and joy, the amount depending on how far they exceed the CL. Worse outcomes have negative affective consequences with feelings of dissatisfaction and displeasure. A person with a high CL will expect a great deal out of life, and will appreciate to a lesser degree experiences that would be quite gratifying to persons with lower CLs.

The height of the CL depends on the person's previously experienced outcomes, both those he receives personally and those he knows or believes others to receive (especially, others who are perceived to be similar to himself). Particularly important in determining the level of the CL are outcomes that are recently experienced and those that for other reasons have especial salience for him. Thibaut and Kelley speculate that those a person views as being under his own control will tend to be highly salient. These include the outcomes he believes to have resulted from his own efforts (that reflect such things as his own power, ability,

value) and the as yet unattained outcomes that he believes it is within his capabilities to achieve. The reasoning here, in brief, is that it is adaptive for the individual to give prime consideration to outcomes caused by himself. In everyday language, it is feasible for a person to be realistic about his own ability in setting his goals and not to set goals the achievement of which depends greatly on unpredictable external factors.

According to this view, then, the CL depends not simply on the person's experienced outcomes but also on the causal interpretations he makes of these outcomes. Who or what is responsible for them—self or others? There are undoubtedly large individual differences in this respect, some persons feeling they are responsible for most of their own outcomes, and, at the other end of the continuum, others attributing causality for their outcomes to external agencies, fate, etc. Thus, two persons both receiving the same fairly good level of outcomes may appreciate them to quite different degrees. Person A who views them as self-caused will have a CL up near them and only receive small amounts of enjoyment. Person B who views them as provided by friendly fates will have a CL far below and will gain a considerable measure of satisfaction from experiencing them. Both of these individuals, when viewed over a period of time, may be "achievement oriented" at least in the sense that they both "try" to get good outcomes. And yet their trying will be qualitatively very different in character. Person A, acting with regard to his own control, tries for things within or close to his range of competency. As he succeeds, his CL gradually moves up. Life is successful for him but never joyful. It consists of a constant exercise of his own power with little enthusiasm or thrill. In contrast, B "tries" in the sense of placing himself at the disposal of the fates. He puts himself in position, where, if they so wish, the fates can demonstrate their friendliness. Life is a series of tests of the fates and, insofar as they prove friendly, is full of exhilaration.

We cannot here go into the basis of these individual differences nor, indeed, are they well understood. They are in part culturally determined. In our own culture, the fates are probably generally considered to be friendly, but there also tends to be great emphasis upon realistic appraisal of one's own competency and working within the realm of that competency. These differences must also depend upon socialization experiences unique to each set of parents—whether they are indulgent or punitive, whether contingently so or always so.

Whatever the source of these individual differences, they have great effects upon interpretations of experiences. It is important to emphasize

the extent to which the causes of important events in a person's life are ambiguous. For example when others help you, do they do so because of your value to them (the extent to which they value your friendship, an aspect of your power), or is it because of intrinsic satisfaction they gain from providing such help and not at all something *you* are responsible for? Given this ambiguity together with the individual differences, quite similar experiences may be quite differently interpreted and, hence, may have markedly different impacts upon the individual's life.

With this theoretical background, let us now consider the consequences of a marked change in a person's life such as occurs with a traumatic disability. We are especially interested in the case where the onset is abrupt. The concern is, of course, with cases involving losses, such as losses in income, in experienced rewards, in capacities, in means of exercising control over the environment, and in means of contributing to others' welfare. (For theoretical symmetry, one might eventually wish to consider abrupt improvements or gains in order to determine the parallels and differences between the positive and negative "traumas.") While the discussion will be in terms of the onset of disability, we might expect the analysis also to apply to other losses such as occur through death of a friend, destruction of one's home, sudden unemployment, deportation, and imprisonment.

One of the most common reactions to loss is mourning—grieving over the lost object or ability. Let us assume, following various suggestions that appear in the literature on catastrophic loss (e.g., Lindemann, 1944), that a state of "mourning" following disability is prerequisite for ultimate adjustment. As Dembo and her co-workers observe (1956), the state of mourning seems to be associated with comparing one's new circumstances with those that prevailed before the loss, so mourning indicates the person is treating the loss as such, not as a mere change, and is preoccupied with its negative implications.

One possible interpretation of mourning, in terms of the concepts outlined above, is that the experienced outcomes have dropped below CL. (See Case I in Figure 1.) The disabled person fully and realistically evaluates the loss in outcomes that he has incurred, they fall below his CL, and as a consequence he is depressed and longs for the earlier time when his outcomes were more satisfactory (above CL). This implies that the CL was fairly high before the trauma, which is to say that the person felt himself to be largely responsible for the good level of prior outcomes. It also implies that the CL tends to remain high after the traumatic event,
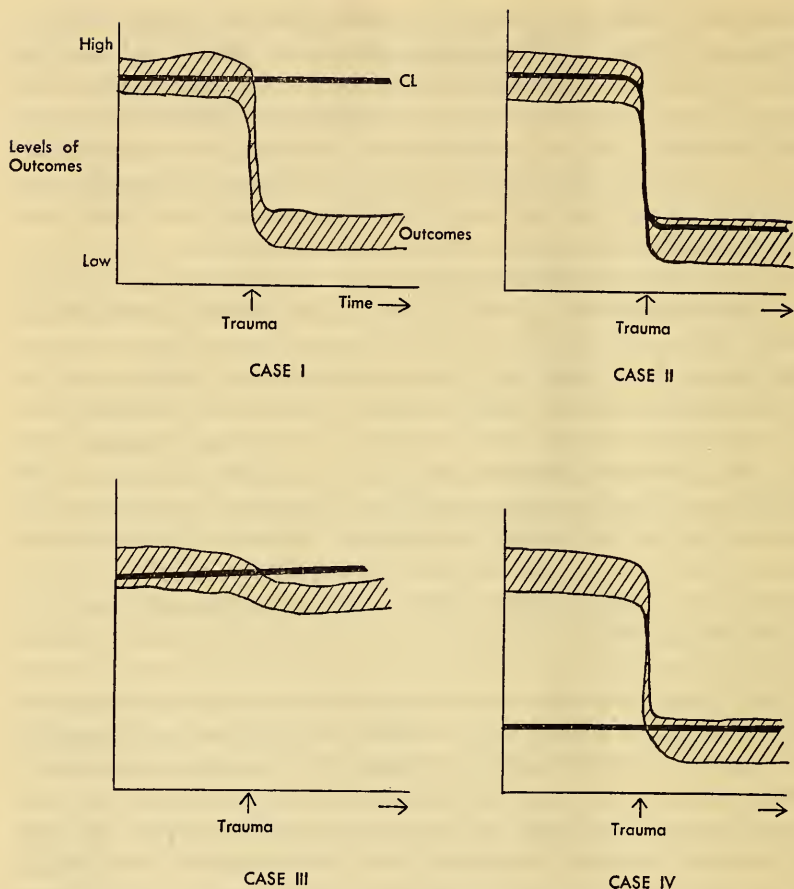
Fig. 1. Comparison level and outcomes in adjustment to trauma.

which would be true if there is no sharp change in the person's concep-
tion of his own power, and if there continue to be many reminders of
(instigations to) favorable outcomes from the past—through the persist-
ence in his environment of persons and places from the past. Further-
more, the new experiences associated with the trauma or following it are
low in satisfaction and high in costs, and are realistically appraised rather
than being glamorized or idealized.

According to our theory, the state of affairs described above is neces-
sary for "mourning." Let us then consider the other events that are pos-

sible theoretically and ascertain how they might relate to adjustment to the disability. Our working hypothesis will be that these other conditions interfere with realistic taking account of the disability and, hence, with ultimate adjustment.

The first possibility is where the CL itself takes a sharp drop (Case II in Figure 1). If this happens, the reactions to the new, lower outcomes are rather "flat" and nonemotional. The new outcomes are, to a considerable extent, "accepted." One factor making for this effect would be a reduction in time perspective, when the individual's evaluative schema becomes dominated by immediate, momentary instigations and he no longer takes account of earlier better experiences. Time-binding of this sort would be fostered by a number of factors such as (a) abrupt removal of pre-onset instigations attendant on the shift from home to hospital, (b) coercive instigations from the pain of the trauma itself, and (c) the concern of the professional caretakers with the person's daily condition and their emphasis upon measuring improvement in very small increments. Whether or not constriction of time perspective to present outcomes is unrealistic depends, of course, upon the nature of the disability. If the old outcomes are irretrievable, it is appropriate to blot them out and let the CL adjust to the new ones. If, however, the old outcomes are still attainable (or eventually so), their disavowal would seem only to prevent later attempts to reinstate them.

The CL will also drop if there is a shrinkage in the person's conception of his power. This would be true if the disability is seen as loss of a means of obtaining favorable outcomes as frequently might occur in cases of loss of a capacity that the person had earlier considered most intimately connected with his power. For one person, this might be the loss of a sensory modality, for another a loss of a limb, and for a third, loss of some mental function. Our analysis asserts that the loss of a power-related function will not be marked so distinctively by dissatisfaction (since CL will tend to drop along with the outcomes) but by a loss of something like self-esteem or pride and a sharp decline in "trying" to improve one's outcomes (a giving up with respect to outcomes once attained).

A second set of factors that might keep the disabled person at or near CL in the immediate posttrauma period (and hence prevent "mourning") would be those operating to prevent his realization of the loss in outcomes involved (Case III in Figure 1). Some rather temporary events during the period of hospitalization might delay this realization by pro-

viding substitute gratifications. For example, he might enjoy the respite from responsibilities and decision-making. The friendly attention of high status professional persons may also provide considerable gratification similar to the well-known "Hawthorne effect" (Roethlisberger & Dickson, 1946). In centers where rehabilitation teams are in operation, the extensive team attention a client receives (resulting from a total team effort to "do things" for him) may provide social and emotional outcomes such as he has never experienced before. To the extent that the individual is responsive to these types of reward, he would be provided with good outcomes which might interfere with his appreciation of the full extent and implications of his disability.

A third case in which, according to our analysis, "mourning" would not occur is when the pretrauma CL is not very high (it is far below the pretrauma outcomes) and, consequently, the posttrauma outcomes are at or near it (Case IV in Figure 1). This would be the case if the person conceived his own power as being highly limited and had regarded the earlier state of affairs as resulting mainly from the actions of external powers or fates ("good luck"). His enjoyment of the earlier state would have been very great but, paradoxically, he would exhibit little sorrow at the new state of affairs.

This trauma, however, provides information in contradiction to his belief that the fates are friendly.[2] To the extent the person is strongly committed to this belief and it forms an important part of his view of the world, and to the extent the disability is attributed to the fates rather than to the self, then cognitive dissonance would be the result (Festinger, 1957). Cognitive dissonance may be reduced by several means. The person may employ the mechanism of denial, refusing to admit that posttrauma outcomes are low. (In fact, in some disabilities there seems to be a kind of euphoria.) Another mechanism is to assist the friendly fates by highly motivated compensatory effort. Thus the decline in ability may be obscured by heroic striving. Such striving may or may not be fully acknowledged and appreciated by the disabled himself, so it can occur along with denial.

[2] The case under discussion very probably entails a pretrauma belief in the friendliness of the fates. If the individual had not earlier regarded them as friendly, he would have drastically restricted his area of operations to matters under his own control and would have had not only a low pretrauma CL but also low outcomes. Only if the fates are regarded as friendly does one *tempt* them and thereby put oneself in a position where they can deliver good outcomes. If the fates are regarded as unfriendly, trauma will be regarded as confirmation of this view and as a further indication of their power and one's own weakness. The CL will drop as fast as the outcomes do, as in Case II.

The mechanism of denial mentioned above (and which also is relevant to Case III where outcomes are kept high) has many different facets. It may be facilitated by an idealization of future possibilities. For example, the use of prosthetic devices may be viewed too optimistically as a means of reconstituting old outcomes. Denial may also entail a transformation of the suffering into an ennobling event visited only upon the elect (i.e., the unfriendliness of the fates is denied even though the suffering is acknowledged.) There may also be attempts to obscure the severity of the disability by avoiding settings and opportunities for obtaining realistic, unequivocal feedback about its consequences. For example, the disabled person may do things (go without his glasses, get too little sleep, drink too much) that render it difficult to assess how much his dysfunctioning is attributable to the disability.

In all of the cases outlined above, the handicapped person will experience difficulty in evaluating his posttraumatic state. Because of its novelty he will be uncertain about just how bad his outcomes are. He will not be able to calibrate with any accuracy the actual state of his subjective response to the trauma. In this process, information from other persons will become very important to him and play a highly significant role in his evaluations. In the absence of any objective means for measuring his pain and distress, for labeling his reactions to the disability, he will seek to compare his feelings with others (Schachter, 1959). He will also seek such comparisons in order to evaluate his new level of ability (Festinger, 1954). For both purposes, he needs people who are appropriate comparison objects. Assume that he is surrounded by other disabled persons. If they have visibly similar disabilities or disabilities with a common cause, the comparisons will be possible. However, to the extent that the disability is covert and invisible, or complexly determined, such comparison of emotional states or of abilities is difficult. To the extent that treatment, assignment to wards, etc., are similar, the disabled person will be alerted to the possibility of comparison. An added factor might be the use of a diagnostic label which has been publicized (polio vs. MS) and for which the patient has established connotations about the nature of the disorder. For research purposes, it might be enlightening to place a number of persons with hidden disabilities (cardiacs, epileptics, and some instances of multiple sclerosis) in rehabilitation centers serving the cerebral palsied, ex-polio cases, and paraplegics and hemiplegics. This would afford the former an opportunity for comparison with persons with overt signs of their disability. Even though the various disorders differ in their character, the hidden disability groups would have some opportunity to

test out the connotations of diagnostic labels which have been publicized, and this might be helpful, in a general way, in providing them with a more realistic basis for evaluating their own disorders.

As important as it may be to the person to evaluate his new circumstances and feelings, under certain conditions there may exist tendencies to inhibit effective communication and comparison with others. Here we refer to the frequently observed narcissism of the handicapped—an egocentric concern with his own bodily states and image. In interaction with other eligible comparison objects, this intense narcissism would be expected to operate as self-oriented behavior which prevents accurate assimilation of information.

Let us attempt to interpret this narcissism in terms of concepts introduced thus far. There may be no special reason for it other than the absence of factors (such as those mentioned in a preceding paragraph) which make it possible for the handicapped person to compare himself with others. If he finds his disability to be quite extreme and unique, he may be unable to make comparisons successfully and may, in some manner, be reinforced for self-oriented, comparison-avoidant behavior. A more forceful explanation would be that he finds comparison possible but its outcome so totally unacceptable that he discontinues it. For example, the person who views trauma as something special delivered upon him by the fates is not likely to continue making comparisons if they tend to disconfirm the distinctiveness of his case. Similarly, he may reject other handicapped persons as comparison objects if he finds their reactions to their (similar) disability to be totally different from the one he favors. He may be unable to accept their optimism (if he is Case II) or their resignation (if he is Case I). (These find their experimental parallels in the tendencies of persons to reject extreme deviants when conformity pressures fail to bring them into line [Schachter, 1959] or for deviants to discontinue comparing themselves with others whose opinions they cannot bring themselves to accept [Festinger, Gerard, Hymovitch, Kelley, & Raven, 1952].) Thus, the personality factors relevant to the adjustments an individual is prone to make to disability probably also affect the kinds of persons with whom he will compare himself and determine indirectly whether or not such comparison will continue.

We have emphasized, in the foregoing statement, the tendency to discontinue comparison if one finds himself extremely deviant in his reactions to or evaluations of his circumstances. However, if similarity is high and especially if the individual is strongly attracted to the comparison

persons, and also if their reactions are not too discrepant from his own, there will be pressures upon him to change his evaluations (Festinger et al., 1952). Thus, the comparison group can affect the individual's evaluations and his narcissism can, under these circumstances, be avoided. Whether this is desirable or not is open to question. In some instances his narcissistic handling of the disability may, in the long run, be preferable; but in other instances, the example of adjustment provided by others may be more desirable. One wonders, in this connection, about how clients' CLs and evaluations are affected by the rehabilitation staff member who himself bears a handicap—the blind counselor who works with the blind, and similar examples.

Dembo, Leviton, and Wright (1956) raise a fascinating problem that involves a comparison of feelings between the handicapped and nonhandicapped. Whereas we have tentatively proposed the hypothesis that mourning is a social requirement made of the disabled by the able-bodied. The argument is that the latter, in order to safeguard his values, wants the disabled person to suffer as a sign that what he has lost (something the able-bodied person still possesses) is important and good. To put it in a slightly different way, one might suggest that the able-bodied person desires the disabled one to express emotional feelings of the sort that the former himself would express (or believes he would) in a similar situation. The existence of such pressures toward uniformity with respect to emotional reactions to situations of rather ambiguous meaning is suggested by Schachter's recent work (Schachter & Singer, 1962). Needless to say, and as the examples presented by Dembo and her colleagues suggest, the pressure on the disabled person to be unahppy with his condition can cause him great perplexity and discomfort.

Summary

In the foregoing, we have suggested that with the traumatic onset of a disability several different things can happen. For a person who was fairly satisfied with his earlier life, who felt his success was pretty much his own doing, whose confidence in his own power is not shaken by the trauma, who continues to maintain some contact with the earlier life, and who realistically appraises the deprivations introduced by the disability, there will be a marked increase in unhappiness and a longing for the return of the earlier outcomes. This person would presumably attempt subsequently to remove his limitations and strive to attain the prior level of satisfaction. Thus, the "mourning" reactions would presage an ulti-

mate satisfactory adjustment, assuming that the limitations were not too huge to overcome.

In the absence of these conditions (in which event, we would not expect "mourning"), there would be a variety of other reactions: *resignation,* if the disability reduces the power the handicapped person perceives himself to have; *apathetic acceptance* of the new level, if the time perspective becomes totally limited to the immediate day-to-day experiences; *euphoria,* if the person idealizes the new outcomes or finds new sources of satisfaction in them; and *heroic striving,* if the person acts to reconfirm his earlier belief that his successes are governed by friendly fates. It is not a simple matter to evaluate the quality or desirability of these reactions as "adjustments" to the disability. This depends on the facts of the matter and subsequent events. In some cases, resignation may be the only adaptation that is consistent with the possibilities. Heroic, overcompensatory striving will be justified if the "fates" do indeed prove to be friendly.

What we are proposing is a typology of reactions to the onset of disability, with some suggestions as to what the distinguishing features might be. In the foregoing discussion there are hypotheses about how the various reactions might be predicted, *in part,* from pre-onset attitudes (CL, perception of own power, beliefs about external sources of power). This kind of analysis also suggests the desirability of using the person's reactions to post-onset experiences as indications of changes in his self-concepts and adjustments. For example, consider a handicapped young adult who is undergoing a prevocational, work-sample experience. It would seem desirable to study his satisfaction with his finished work, the causal interpretations he makes of his outcomes, and the responsibility he takes for them. Research on changes in CL during the prevocational evaluation period might show them to provide useful prognostic information about the capacity of the handicapped person to undertake training or to be placed on a job.

Some problems of the role of the rehabilitation counselor are also raised indirectly by our analysis because the counselor's behavior and attitudes are undoubtedly important influences bearing upon the handicapped person's interpretations and evaluations of his experiences. We have tentatively interpreted the dramatic instances of extreme striving and achievement by severely handicapped persons as reflecting a special kind of dependency—a feeling that one is in league with powerful and benevolent forces. The question this raises is whether a competent coun-

selor can somehow nurture and encourage this kind of dependency. There has been great emphasis on inappropriate dependency relationships— those leading to apathy, refusal to face problems, conservative goal-setting, and similar constricted patterns. Perhaps a more appropriate kind of dependency can be formulated and developed by counselors, a dependency which will on the one hand fulfill the relationship needs of the handicapped and, on the other, yield an active outgoing behavior pattern akin to what we have called "heroic striving." Progress in this direction would seem to require the counselor to influence the patient's interpretations of the causal and power implications of his experience. After suffering the intense deprivation associated with the trauma, a handicapped person is likely to be willing to accept the idea that powerful external forces are playing an important role in his life. Can he then be induced to believe these forces are basically on his side and that the present setback is only a temporary one? Or perhaps he should be encouraged to believe he has been singled out by the fates for their special attention and that this holds promise of exceptional experiences, good ones as well as the extreme deprivation he has undergone. Admittedly these suggestions are highly speculative. They are presented to bring into question the oft-expressed view that all types of dependency attitudes are to be avoided.

The methods of rehabilitation should also be examined from the point of view of their effect on the "mourning" process that is thought to favor a good final adjustment to the handicap. Reality testing may be desirable for the ultimate recovery of some clients even though they do not find the immediate consequences to be pleasant ones. Such testing may best be provided by a workshop technique or work-sample testing rather than through the counseling relationship alone with its supply of social-emotional rewards quite in excess of those ordinarily attainable in work and social relationships. It may be particularly necessary to insist on reality testing for the class of clients who conceive of their own power as being extensively reduced by the disability and who, therefore, give up and refuse to go through any testing of their remaining skills.

This discussion has been very theoretical and hypothetical. We may not have conceptualized "mourning" correctly, we may have overemphasized its importance, and we may not have outlined a correct typology of reactions to trauma. We believe, however, that fruitful directions for research on the effects of handicap are indicated here. It must certainly be important to consider individual differences in such things as conception

of one's own power and notions about what one deserves from life—both before and after the traumatic event. As a strategy for studying these attitudinal and belief variables in their extreme states, there would be great value in cross-cultural studies of adaptations to disability, for example, comparing those cultures which have widely divergent views of self-determination vs. control by the fates. Then, these differences must be viewed in terms of the specific nature of the handicap and the reactions it elicits from the social environment. From a social psychological viewpoint we would emphasize, on the one hand, the interpretations and responses the individual is prone to make because of his earlier social experiences and resulting self-concepts and, on the other hand, the modification of these interpretations by the action of social pressures and examples.

The Second Trauma: Rehabilitation

This heading is rather more dramatic than the point we wish to make. The point is this: *In certain respects*, the rehabilitation process presents the person with new losses to which he must adjust. These are not necessarily sudden and he may be prepared for them in advance since their nature is more predictable.

During rehabilitation, the disabled person typically moves from the social environment and in the persons with whom he can compare himself. The changes can be analyzed in terms of a distinction between task outcomes (rewards) and social-emotional outcomes, paralleling a distinction between two types of roles suggested by Bales and Slater (1955). For example, in a sheltered workshop, outcomes associated with task performance may be relatively high, assuming that some readjustment of CL has taken place and it is now largely based on comparison with fellow disabled workers. On the other hand, social-emotional outcomes are likely to be rather low: all workers are equally in need of sympathy and affection, and they are unlikely to feel sympathetic toward each other. Moving to the outside, normal work-world, there is likely to be a loss of outcomes associated with high task performance. Praise for work accomplishments and pride in work will not be as great as in the sheltered workshop and if he is unable to keep up with the normal workers, these may be considerably lower. The disabled person may therefore be forced to compensate for the reduction in these outcomes by qualitatively different outcomes associated with such social-emotional responses as sympathy and special privileges. This tends to place the person in a situation of status

incongruency and insecurity. He is receiving rewards inconsistent with his task performance. In a group where task performance is highly valued, his status (his level of outcomes relative to those of others) may seem quite unwarranted, both to himself and to others. The result will be anxiety about real or anticipated resentment and jealousy. At the same time, the handicapped person may be loath to forego the special social-emotional outcomes he receives. To maintain them, it may be necessary to continue to do poorly in his task role. That is, the disabled person may face the possibility that as his performance becomes comparable to the lower levels of normal performance, his receipt of specialized privileges and sympathy will decline. This raises the question: What are the consequences of a state of affairs where important reinforcements are contingent upon a continued low level of performance? One possibility is that he maintains this level and justifies his outcomes in some other way—as by assuming a role that is consistent with them, taking one of the various social-emotional roles.

Information Seeking and Feedback

A physical handicap should have considerable impact on the types of information a person seeks to obtain from his social environment and the types he attempts to avoid. It must also affect the information the social world makes available to him, most importantly, the evaluative reactions to his behavior ("feedback").

Several sharply different predictions might be made with regard to the handicapped person's motives and skills in seeking information. On the one hand, there are several reasons to expect heightened sensitivity to other people. Because the handicapped person is in a weaker position in relation to others (his abilities to deal with them are limited as compared with normals), it would seem that he must learn how to "manipulate" them. This necessitates knowing much about them—their desires, weaknesses, and areas of vulnerability. To obtain such information useful in "handling" people from his disadvantaged position requires that the handicapped person be highly sensitive to them, making quick, acute, discriminating judgments about them.

Arguing along different lines, one might reach the same conclusion of heightened sensitivity and information seeking: the traumatically handicapped is in need of a basis for evaluating his new and (to him) strange condition (as discussed in the preceding section). He may be very anxious to get information about the reactions of others so as to obtain a new

definition of his social stimulus value. With the task of relearning what other people expect of him and how they view him, he should be active in seeking information and reactions from other people.

On the other hand, there are good reasons for expecting the handicapped to show an attenuated perceptual sensitivity. In the last section, as a possible interpretation of narcissistic fixation on the self, we suggested that the person might discontinue comparing himself with others who are handicapped because the results of the comparison are highly unpleasant. For example, his feelings of uniqueness are disconfirmed, he cannot accept others' reactions to their similar handicaps, and so forth. In a similar manner, information about normal persons' reactions may cause so much discomfort that it is avoided, and perceptual defense is likely to be operative. A person who cannot change his handicap will feel there is little he can do to alter other people's negative reactions. The main solution for him is to overlook or deny them.

Another factor having relevance for the perceptual sensitivity of the handicapped person is the kind of information he has available as a basis for learning to make discriminations about others' attitudes and reactions. It seems reasonable to assume that normal people behave in a more constrained, less spontaneous manner toward the handicapped than toward other normal persons. There are many reasons to suppose this. There are strong norms in most sectors of our society indicating that the handicapped are to be treated kindly and carefully. At the same time, there are many admonitions to treat a handicapped person the same as anyone else. So the norms are not unambiguous and a normal person is not likely to be sure what kind of behavior is expected and appropriate. Along with the uncertainty there is often a fear of unintentionally hurting the handicapped person's feelings.[3] In part, this fear may reflect an imperfectly controlled impulse (very likely an unconscious one) to express negative feelings toward the handicapped.[4] Finally, the typical normal person has not had much opportunity to interact with the handicapped, so he has not been able to learn to feel at ease and how to behave toward them.

Taken together, these factors—the strangeness of the situation, the equivocal rules for interaction, the mixed feelings aroused—provide more

[3] Beatrice Wright (1960) notes that the handicapped are judged as being more "sensitive" than average, which probably means more easily "hurt" rather than having high perceptual sensitivity.
[4] One is reminded here of Hebb's observations (Hebb & Thompson, 1954) that chimpanzees react to anesthetized bodies of other chimps with aggression as well as fear. Hebb interprets this behavior as related to the reactions commonly seen toward strangers, elicited by the unusualness of the animal's behavior under the anesthetic.

than a sufficient explanation for behavior that is self-conscious, overcontrolled, and rigid. As in other social situations of discomfort and ambiguity, the individual's major recourse is to careful compliance to the general norms of social etiquette, which dictate politeness, "niceness," and a certain amount of formality. Consequently, the normal's behavior is likely to be rather highly standardized and unconditionally (though mildly) favorable in tone. The further consequence is that the handicapped person's information about others' reactions will be severely restricted and he will have less chance than his normal fellows to learn to make the discriminations possible in ordinary social interactions. Also, insofar as behavior of normals is predictable, the handicapped will be less motivated to learn to make social discriminations. Treated uniformly by most passing strangers and acquaintances, he has to learn only how to judge and predict the behavior of a limited number of close associates.

In brief, certain considerations argue that the handicapped will show greater sensitivity than a normal person, but other considerations lead to the opposite expectation. It is perhaps most likely that both sets of factors are at play. Under some circumstances and for some handicapped individuals, heightened sensitivity will prevail, but other situations and persons will be characterized by lessened sensitivity. Present evidence on this question is scanty but tends to be consistent with reduced sensitivity. Data presented by Hastorf (1959) indicate that the handicapped restrict their descriptions of other people to a smaller number of characteristics. This may be a sign of focused concern (though the categories they do use do not indicate this very clearly), or a sign of blunting of interpersonal perception as a function of perceptual defense, or a result of the meager information presented by the normative reactions of others.

Several lines of research on the handicapped are suggested by the preceding considerations:

1. Of first importance would be investigations of the handicapped person's ability to pick up information from others. Is he as skillful as normal persons at judging others' intentions, moods, interpersonal likes and dislikes? The latter might be investigated with the method of relational analysis suggested by Tagiuri (1952), in which persons are asked not only about their sociometric choices but also about their guesses as to who likes and dislikes them and who likes and dislikes specific other persons.

2. Do normals react in a more standardized fashion toward the handicapped than toward other normals? This could readily be studied by observing subjects' behavior toward a confederate who, for some, displays

a handicap and, for others, none. One would wish to study not only intersubject variability but also the variability a given subject exhibits as the confederate acts out different elements in a prescribed repertoire of behaviors (asking the subject for help, refusing to help the subject, flattering the subject, criticizing the subject). It would also be interesting to question newly handicapped persons on how the social world appears to them. (Perhaps somewhat similar information could be obtained by having normals simulate a disability when they enter a new group and compare their impressions of that group with those formed when they enter a new association without a simulated handicap.) The question here would be: Does the person with a genuine or mock handicap find that his social world has a facade-like quality in which others do not act naturally or reveal much of their idiosyncratic personalities?

3. What are the consequences of being presented with norm-determined behavior rather than with "spontaneous" person-determined behavior, caused, selected, and directed by the person's own feelings and wishes rather than by social mores? An experiment by Jones, Davis, and Gergen (1961) bears on this point. Being presented with role-matching behavior, a subject does not feel he has learned much about the stimulus person, but when presented with behavior not in keeping with the stimulus person's role, the subject feels he has learned a good deal about that person as an individual and his appraisal of the person's attributes becomes closely linked to behavioral cues. It would be interesting to determine whether being handicapped would increase one's sensitivity to out-of-role behavior in such an experimental situation. It would also be enlightening to investigate how a handicapped person relates non-norm-determined behavior (as when a normal person interacts with him without knowledge of the disability) with norm-determined behavior (as when the other person "finds out") to construct his impression of the other.

The standardized, generally favorable reactions of normals toward the handicapped have been discussed above as interfering with the latter's ability to acquire skills as a perceiver in social interactions. If the reactions we have assumed do indeed exist, they also probably hinder the handicapped person's mastery of social norms and rules about interaction. Consider an experiment by Kelley and Ring (1961) which deals with a trainer-trainee relationship in which the trainer is not able to see all of the trainee's actions and the trainee has the option of bringing his behavior to the attention of the trainer. A trusting trainer (one who assumes

the trainee has done the right thing unless presented with evidence to the contrary) tends to encourage the trainee to conceal his behavior with the consequence that the trainee learns more slowly how to meet the trainer's demands. In contrast, a suspicious trainer who assumes performance was not good unless shown otherwise, encourages trainees to bring their behavior to him and, consequently, produces greater learning of his behavioral requirements.

In this experimental situation, showing or hiding is a response in the trainee's repertoire that affects the nature of the evaluative feedback he receives from the trainer. If he hides, his feedback is more equivocal and contaminated with irrelevancies than if he shows. With the trusting trainer, hiding leads to feedback that is largely positive regardless of the trainee's behavior. If our assumption of unconditionally favorable reactions to the handicapped is correct, then they are treated in much the same way as the trusting trainer treats his trainees. They receive generally favorable reactions that convey little information about whether or not they are pleasing others, meeting their standards, etc. And the handicapped have responses at their disposal similar to the show–hide choices in the experiment. They can reveal their disability, make it salient, and present it as relevant to the interaction, or they can do the opposite of these. The former are likely to heighten the unequivocally favorable feedback they receive and hence are likely to be learned under certain conditions just as the trainees learned to conceal their behavior from the trusting trainer in the experiment. These conditions would presumably be those in which it is easier to learn the response that renders the feedback wholly favorable than to learn the responses desired by the trainers. And in this manner, the general efficacy of playing up or emphasizing the disability may be learned, with the result that the handicapped person uses it in a wide variety of interpersonal settings. If he does so, he fails to extract from those situations the information they potentially contain as to desirable social behaviors and interaction patterns. In brief, he reduces his opportunities for learning how to get along with other people and to live up to their expectations.

This problem should also be viewed from the other side of the interaction, considering the normal as "trainee" and the handicapped as "trainer." When the normal person resorts to stereotyped, norm-determined, unequivocally positive behavior toward the handicapped, he is in a real sense *hiding* his true behavior. Such concealment of individuality makes it impossible for the handicapped person to "train" the normal

in the kind of personal, non-role-determined behavior he prefers. Thus the handicapped's use of his disability in a manner that prevents his own mastery of the demands of normal social interaction may also act to prevent others from learning to behave in ways that are maximally satisfying to him.

In the preceding discussion, we have raised the question of concealing vs. showing the disability (minimizing it vs. emphasizing it). If its presentation causes others to make counter-presentations of guardedly bland or uniformly positive reactions, one wonders if the handicapped person ever tries to arrange the situations that force others to respond in nonnormative terms. For example, by concealing his disability (not reporting its existence if it is normally hidden or arranging special means of hiding it if normally visible) he can discover people's reactions to himself without the disability. A totally different way for him to gain information about others' true attitudes toward him is to "test the limits" by demanding increasing amounts of help and positive feedback from others. Here we have in mind the seeking of help that is directed to finding out how far he can go and how much others really like him. Their general helpfulness under typical conditions may simply be taken as indicating conformity to social norms, but their rendering extreme help and making considerable sacrifices to do so is a more convincing demonstration of their positive regard for him. A similar kind of test would be concealment during the early stages of an interaction followed by revelation, in order to test the strength of the other person's commitment to the relationship. A handicapped person can also reveal quite explicitly his own feelings in order to elicit an open expression of feelings from others. An unpublished study by Thibaut and his associates suggests that such revelations would indeed have this effect. Personal and intimate self-references by an experimental confederate were found to increase the frequency of similar expressions by subjects. In this connection, Beatrice Wright (1960) reports that the handicapped are regarded as often reserved and hiding their feelings. This seems an interesting lead for research. On the one hand, it may reflect their tendency to keep social interplay on an even keel, well-regulated, and avoiding expression of feelings. On the other hand, it may simply represent the projected wish of normal persons that interaction with the handicapped should avoid awkward and embarrassing matters.

We have been considering revelation of disability, the expression of feelings, and help-seeking as information-obtaining devices. There are of

course many other possible motivations for these behaviors. Extensive help-seeking can be a means of satisfying dependency needs and it can also simply reflect unrealistic expectations that have been built up by the person's experience with the normative reactions of helping. Revelation of the disability can well be a manipulative device, used to gain sympathy or, particularly when revelation can follow successful concealment, as a way to go "one up" with the other person, as for example by showing how inappropriate his earlier behavior has been. Especially in the case of a handicap that can be successfully hidden but is startlingly unusual when revealed, its possession gives a person a means of exercising behavior control over others in the sense that its presentation can require them to make sudden and major adjustments in their behavior (Thibaut & Kelley, 1959). The motivation to use such means of behavioral control for the sake merely of witnessing the effects, as in teasing, has not been considered much by psychologists. Note has been made of its importance in the interactions of caged chimpanzees and even in their interchanges with their keepers (Hebb & Thompson, 1954). We will consider this further in the last section of this chapter.

Summary

We have considered the question of whether the handicapped person is more or less sensitive to social cues than is his nonhandicapped counterpart. Several research problems are suggested for the purpose of discovering how the handicapped person's intake of information from his social surroundings differs from that of normal persons. Two important possibilities are (a) that the handicapped person's skills and motivations with regard to obtaining and processing social data are somewhat unique and (b) that the social environment makes available to the handicapped individual a special sample of stimuli. With regard to the latter, we have hypothesized that the sample is both attenuated and standardized in comparison with what is presented to normals. This is, of course, only a hypothesis, but if shown to be true it has some important implications, as noted, for the acquisition of appropriate behavior patterns by handicapped and normal persons for their interaction.

While these are matters of the disabled person's contact with the social world of the nonhandicapped, some of these problems may be studied in rehabilitation settings. For example, if a new disability group, a type never before served, is introduced into an agency, the early impressions and reactions of the staff may afford a social environment not too

distinguishable for the handicapped from the outside "normal" population. In at least one instance where a new class of the disabled was added to the clientele of a treatment center, the initial reactions of the staff were fear, rejection, and hostility. The kind of feedback to the new group under these circumstances can easily be studied and the feelings of the staff toward working with a "foreign" disability group, if exposed and analyzed, might give many valuable indications of general reactions to the handicapped.

Establishing and Terminating Relationships with the Handicapped

In the preceding sections, we have considered some of the social psychological aspects of the handicapped person's view of himself and his perception of other's attitudes toward him. We now consider relationships between handicapped and normal persons from the point of view of the latter. The focus is upon the attitudes of normal persons during the stages of forming relationships with the handicapped and, later, during the stages of disrupting relationships. We discuss the case of an employer hiring and then terminating a handicapped person.

Our central assumption is that the employer is likely to have considerable conflict on both of these occasions. Consider first his decision about whether or not to hire a handicapped person. On the positive side, he will anticipate such things as the feelings of virtue that such an action would bring and the favorable symbolic value of the action for his business (appearing to be "community-minded" or "a company with a social conscience"). On the negative side, he may have much uncertainty about how the handicapped worker will be able to perform. If performance proves not to be satisfactory (and who can be certain about this even in the case of a nonhandicapped worker?) there will be the problem of terminating the worker—the guilt and social disapproval that may result from seeming to reject the handicapped person. In some important respects, establishing a relationship with the handicapped person entails the risk of entering a nonvoluntary relationship (Thibaut & Kelley, 1959, Chap. 10). The pressures, both internal and external, acting upon the normal person to maintain the relationship may be so great that he will have to accept less profit from the interaction than he would ordinarily be willing to settle for. When first considering establishing the relationship, the nonvoluntary aspect of it will create concern about the possibility of being exploited by virtue of not being able to reach a firm resolve to fire the person.

If at the point of hiring there is anticipated a conflict over the eventuality of firing the handicapped worker, this concern is likely to be realized whenever the question of termination actually does come up. The reasons for getting rid of the employee, whatever they may be, will be counterbalanced by the powerful personal and social restraints against doing so.

The consequences of these conflicts, whether at the hiring or the termination stage, can be predicted from conflict theory (Lewin, 1935; Miller, 1944; Berlyne, 1957) or from cognitive dissonance theory (Festinger, 1957). Let us consider first the hiring situation. According to conflict theory a person who is faced with a choice between two closely equivalent alternatives in an important decision situation (in this case, the alternatives are *hiring* and *not hiring*) finds it necessary to make one of them prepotent in order to make the decision at all. Most adults have learned to do this, the reinforcing condition for this learning being (according to the theory) the escape from the uncomfortable state of conflict. In the course of making the decision, then, the chosen alternative is idealized, its positive aspects emphasized and exaggerated, and the rejected alternative is devaluated. These processes of idealization and devaluation are reinforced by their value in alleviating the stresses of conflict. Cognitive dissonance theory deals with the postdecision consequences of choice and leads to much the same conclusions. According to this view, when a choice is made the person is left in a state of dissonance, all the considerations favoring the rejected alternative (positive aspects of that alternative and negative aspects of the chosen one) being dissonant with the fact of having chosen the other one. Dissonance is assumed to be uncomfortable and the drive to reduce it manifests itself in any or all of several ways, such as a supervaluation of the chosen alternative or a devaluation of the rejected one.

When applied to the hiring situation, both of these views suggest the possibility that hiring under conditions of conflict will result in idealization of the person hired. Thus, the employer of the handicapped person may have unduly high expectations about how good the worker's performance will be or unrealistic notions about how cooperative and pleasant he will be. Idealization resulting from the decision to hire may also induce magnified anticipations of feeling virtuous and exaggerated expectations of receiving gratitude from the employee (cf. next section) and approbation and good will from the community at large.

Some of the consequences of overidealization are perhaps too well known to require detailing. These are the disappointment and frustra-

tion that come from the failure of expectations too high to be realized. It may also have some peculiar consequences for the relationship. For example, to protect the idealized picture (or to further the course of post-decision dissonance reduction as Ehrlich, Guttman, Schonbach, and Mills [1957] suggest), the employer may seek to bias the information he gains about the worker's performance. To this end, he may place the handicapped worker in a situation where he, the employer, can obtain only positive or ambiguous information about the performance and where he avoids negative information. This may involve placing the worker on either an unmonitored job (where evidence of performance is not available) or an unduly easy one on which he can hardly help but succeed.

Conflict also has implications for evaluations of the handicapped worker in the termination phases of the relationship. In order to bring himself to fire a handicapped employee, the employer is likely to find it necessary to resort to reverse idealization or extreme devaluation of the employee. This will have consequences regarding information intake that are the reverse of those described above. For example, the employer may begin to place the worker in a position where the demands made upon him are excessive and where his performance is subject to close monitoring.

The effect on the employee of the reverse idealization or "debunking" process may be startling, especially if it follows upon the heels of the idealization processes described earlier. The boss will appear to have changed, for no clear reason, from holding the worker in high esteem to viewing him in a quite negative light. An especially perplexing part of the employer's reversal in attitude is likely to concern the interpretation he places upon flaws and inadequacies in the handicapped worker's performance. The research of Jones and deCharms (1957) suggests that a person cannot be criticized or blamed as much for his performance failures if they reflect ability limitations as if they indicate poor motivation ("He's not even trying"). Accordingly, during his idealization phase we would expect the employer to attribute performance problems to ability factors, but during the debunking phase he will attribute them to motivation. From the employee's viewpoint, the irony of this switch is that his ability seems to be more highly evaluated during the termination phases of his employment than during its earlier stages.

In view of its consequences (idealization and debunking), conflict about establishing and terminating relationships with the handicapped seems clearly something to be avoided or minimized. Several possible means to this end are suggested by theoretical analysis. The magnitude of

conflict generated in a choice situation (and its potential for postdecision dissonance) is generally thought to depend upon both the magnitude of the opposing considerations and how nearly equal they are (Berlyne, 1957). From this it follows that one way to reduce conflict is by reducing the magnitudes or strengths of the competing concerns. For example, perhaps fewer extraneous motives and appeals should be brought to bear upon decisions to hire the handicapped. Thus, there would be less conflict if this hiring were on a basis more similar to that of hiring any other worker—if less thought were given to gaining approval and feeling virtuous during the hiring stage, and if there were less anxiety and guilt about losing these at the termination stage. To suggest that community approval and good will come from hiring the handicapped also implies that firing will lead to the opposite of these. Thus one component of the conflict—concern about the reversibility of the relationship— may be introduced by the very appeals used to induce the employment. Conflict could be lessened somewhat by making it appear as easy to terminate the handicapped worker as any other worker.

Another way to avoid conflict is by creating great imbalance between the sets of considerations supporting the two choices. Thus, hiring would entail less conflict if extremely strong pressures were placed on employers to hire the handicapped. As Festinger and Carlsmith's research (1959) suggests, postdecision dissonance will be low if compliance has been induced by overwhelmingly strong pressures. (Even in the absence of objectively strong pressures it is possible, at least theoretically, for a person to reduce dissonance by exaggerating the coerciveness of the pressures that do exist.) There would then be no need for the employer to idealize the handicapped worker. The application of this principle encounters several difficulties which render its practical value questionable. The employer may vent his resentment toward the outside forces that "made him" hire the worker upon the worker himself, or the employer may be so fixated on the external sources of approval and sanctions that the employee's contributions go unnoticed and he is unable to establish his status as a valuable member of the enterprise. A pervasive problem is that strong pressures making for little conflict at the time of hiring may persist to create a great deal of difficulty about firing. The better type of solution, in general, is to minimize the basic causes of conflict or dissonance which are, on the one hand, the spurious pressures to hire and, on the other, the lack of information on which to base realistic expectations about a prospective worker's performance.

Summary

The employer-employee relationship has been used to illustrate some of the possible problems connected with the formation and disruption of relationships with the disabled and handicapped. Assuming that an employer experiences a good deal of conflict and uncertainty about hiring and terminating a handicapped worker, theory suggests that certain consequences are likely to follow: overidealization accompanying hiring, unrealistic expectations of performance and social approval, and overcriticism and excessive blaming as a prelude to termination.

The view developed here may be exaggerated and even totally inaccurate with respect to particular cases. The exceptions are perhaps most plentiful in the very area we have chosen for illustrative purposes—that of employer-employee relations. Many employers are undoubtedly more hardheaded about these matters than we have indicated, taking a "business is business" attitude and not being under any particular illusions about the community good will to be gained through their hiring practices. More importantly, with the considerable attention and information rehabilitation counselors can bring to bear upon the placement of a disabled person, an employer is likely to know exactly what to expect of a prospective employee. The objective evidence regarding his capabilities may be so complete and compelling that even if the employer felt a certain amount of conflict about the assignment, it could hardly generate overidealization. For these and other similar reasons, our example should not be emphasized. The real purpose of this section has been to call attention to the special ambivalences and uncertainties a normal person is likely to experience when entering or leaving a relationship with the handicapped by virtue of the unique values, fears, and pressures (real and imagined) that environ such relationships.

POWER AND STATUS RELATIONSHIPS BETWEEN THE HANDICAPPED AND NORMALS

The relationship between any two persons is not a wholly spontaneous affair that develops in whatever way it will. There are always norms that govern, at least in part, their interaction. These norms depend upon the kinds of persons interacting (such as their social class, sex and age categories, occupations) and are responsible to some degree for the character of the interplay between them. Among other things, these norms specify who will do what, what each one can expect to derive from the relationship, and the controls they may and may not exert over one another.

Our consideration of the interaction between normal and handicapped individuals begins with the assumption that the norms applicable to their relationship are more ambiguous than the norms applicable to other more common relationships. By this it is meant that there is vagueness and uncertainty about how to *interact* with the handicapped. Richardson, Goodman, Hastorf, and Dornbusch (1961) present evidence that suggests there is rather high agreement on how you *feel* about them. Similar investigations should be made of how you behave toward them. If our assumption about the ambiguity of behavioral norms is correct, one would expect to find normal persons often checking with each other and inquiring about what actions are appropriate in relationships with handicapped persons. In the absence of evidence from the study of these norms, we shall make some guesses as to their nature and follow out the implications of their assumed character.

Viewing the interaction norms from the standpoint of the normal participant, they convey on the one hand the idea of helping the handicapped person but, on the other hand, there are enjoiners to relate to him in the same manner as you would to anyone else. "He wants to be treated like anyone else and not reminded that he's different." Thus, while some help and supportiveness seem to be indicated, the *extent* of help and *when* it should be given is unclear. Part of this ambiguity is probably traceable to the infrequency with which the normal person interacts with handicapped individuals as well as to the diverse types he is likely to encounter. The situation is different then from interaction with persons in other standard roles (for example, the store clerk, bus driver, school teacher) where interaction is frequent enough and the persons uniform enough so that one can readily learn the rules for dealing with them. This ambiguity of norm may also reflect the conflictful attitudes with which normal persons enter relationships with the handicapped, such as were described in the preceding section.

How does the normal person handle this ambiguity with respect to how he is supposed to behave towards a handicapped individual? It was suggested earlier that this ambiguity, together with the mixed feelings aroused by the handicapped, causes the person who has only infrequent and casual contacts with the handicapped to adopt a kind of stilted and formal mode of interaction. Turning our attention to persons who are in a position to have more enduring relationships with the handicapped, we would suggest that the norm ambiguity makes it difficult to strike a happy medium. They are likely to adopt an extreme stance of one sort or an-

other. For example, one person may be overly tough and reject all requests from the handicapped. Anticipating the possibility that the demands upon him may become excessive, he will tend to draw the line quickly and to avoid or break off the relationship before it has a chance to get under way. At the other extreme, we would expect some persons to be overly compliant and helpful, elastically acceding to all requests and being smotheringly supportive.

A reaction of either extreme type (hastily rejective vs. overly helpful) is likely to flipflop easily into the other. The guilt created by rejection may well lead, at least temporarily, to a reaction against it. Also, full compliance, not being clearly justified by norms or by what others do, is likely eventually to bring about resentment which builds to a strong counter-reactive rejection.

One would suppose that most persons learn to avoid the awkwardness and uncertainty of such ill-defined, conflict-laden relationships. The means of doing so are simple: evasion of contacts with the handicapped and refusal to acknowledge their attempts to initiate interaction; support them but at arms length, as through contributions to the community fund.

If these assumptions and their effects are correct, they have implications for how the handicapped person will find his social world. He will find many individuals who are indifferent to him and actively avoidant of his company. Those who do interact with him will tend to exhibit extreme attitudes of almost open hostility or of unwarranted helpfulness. As noted in an earlier section, their behavior will not be discriminatingly fitted to his behavior but will show large and unaccountable fluctuations. For a time a person will be helpful, then suddenly he will become rejecting. The handicapped will experience often that a "friend" seems to turn against him. Like everyone, the handicapped individual needs some definition of what he can expect others to do for him, but his feedback on this point is especially confusing. Hence, he is more likely to try to see how far he can go (in making demands, eliciting help) with each new person. He will place a special value on those friends who are consistently generous and helpful. He will regard these relationships as very close ones and he will believe that these individuals like him personally a great deal—these are his "true" friends. Because they have so much importance in his otherwise shifting and unstable social world, he is likely to regard these relationships as more intimate and personal than do the other participants. The consequence may well be that the handicapped person makes demands on these individuals which they regard as exces-

sive. Thus, these and other normal persons will find confirmation for their fears about being exploited by the handicapped.

In the foregoing we have been considering how the ambiguity of norms about normal-handicapped interaction creates general problems for the normal person in defining a suitable way to relate to the handicapped person. Consider now the implications of norm ambiguity for the interpretations placed upon "help." Our general point is that when a normal person does something for the benefit of a handicapped person, the two are likely to make different interpretations of this event. The normal individual can easily regard it as self-caused, i.e., something he does because of his own inclinations. Indeed we would expect him to interpret it this way because to do so casts himself in a favorable light, as a good, generous, sympathetic person. The gains in feelings of virtuous altruism thereby achieved would not be attainable if the helped person is someone you are very fond of or help out of a feeling of duty. For some persons, these virtuous feelings may even be so important that they militate against "liking" handicapped individuals.

In contrast, the handicapped person is likely to locate the cause of the "helping" action in himself ("I am a worthy person and he did it because he recognizes this") or in impersonal norm requirements ("He did it because he saw that he was supposed to"). An important consequence of this difference in attribution of causality is that the normal individual will expect gratitude, a personalized acknowledgment of the help. However, the handicapped person will not give this kind of acknowledgment, for to do so is to admit his dependence on the good will and beneficence of this particular person. The handicapped person will prefer to believe that the help depends upon impersonal rules or upon his own attributes (the things that make him likeable, attractive, interesting). He will then feel that no deferential acknowledgment is necessary and will give merely a kind of impersonal indication that the action has been received. Furthermore, if he detects the normal person's feelings about the help, he will resent the implication and possibly even reject the help.

Closely related to the ambiguity of norms in regard to "helping" and the interpretations placed upon it is an ambiguity about the status relationship prevailing between a normal and a handicapped person. There are several reasons to believe that many normal individuals will expect more deferential behavior (acknowledgment of their superiority) from the handicapped than the latter are likely to provide. In our culture persons with fewer or more limited capabilities are often regarded as infe-

riors. This means they have few legitimate claims upon others and are pretty much dependent upon the compassion of their superiors. Being unable to return favors in terms comparable to those they receive, they are supposed to show gratitude and to acknowledge others' superior status.

For a number of reasons, the handicapped individual cannot accept this definition of his relative status. In many instances his former status was high. He still retains many capabilities, and to prevent loss of self-esteem he will tend to emphasize these and to minimize the importance of those he does not possess. He is actively encouraged in this by the rehabilitation process and the widely circulated statements about the handicapped. The upshot of this is that many of the dimensions of personal worth he now de-emphasizes (for example, mobility, strength, physical appearance) will be the very dimensions from which many normal persons derive their feelings of status and self-esteem, and some of the aspects he regards as critical will be those that others regard as of marginal importance. This disagreement as to the weighting to give various personal characteristics will be reflected in disagreement about the relative status of normals and handicapped persons.

We have already considered one aspect of this disagreement: the handicapped will often be thought to be ungrateful, not expressing a proper sense of the favors he receives. Another consequence is that the handicapped individual will be expected to be compliant, agreeable, and unobtrusive. To generalize again, low status is associated with low power (the latter being responsible for the low status, according to some views). For a low-status person to disagree with the views of others, to refuse to comply with their requests, is more or less unthinkable. The low-power person's compliance is taken for granted. While it is seen as externally caused (Thibaut & Riecken, 1955) his noncompliance in the face of the more powerful person's induction can only be attributed to his internal resistance or a self-caused opposition to the inducing agent. Thus, the low-status individual gains no credit from being agreeable and compliant. In a sense he is thought to have no alternative. He is not seen as a nice person who likes others and gets along with them and helps them. Rather his conformance and agreeableness is viewed as mere obedience. However, his noncompliance is another matter. It tells much about him as a person and its implications are, of course, totally negative. In a peculiar sense then, the low-power individual cannot gain approval from his "good" actions but stands only to lose approval through his "bad" ones.

Insofar as normal individuals regard handicapped persons as low in status and power while the latter do not so regard themselves, the handicapped individual will find that he gets too little credit for being pleasant, agreeable, or compliant, and that his actions of resistance and noncompliance are greatly magnified and evoke unexpectedly negative evaluations.

The above argument does not apply, of course, to noncompliance the reason for which is obviously found in the person's particular disability. This highlights one of the important social psychological consequences of hidden vs. visible handicaps. When a person fails to do something that others expect or desire of him, this does not reflect to his discredit if the cause can be located in a lack of ability. On the other hand, a similar failure which is attributed to lack of "trying" or motivation is ordinarily viewed negatively, as described above. The latter interpretation is likely to be made when the impediment to the action is hidden from and not understood by the observers. For example, in the study of a summer camp for handicapped children reported by Hastorf (1959), it was observed that children with hidden handicaps were more rejected in sociometric choices at the end of the camp than at the beginning. The investigators surmised that many unexplained failures of the child with a covert disability (e.g., failure to run fast to first base in a ball game) were attributed to poor motivation. In the analysis of this type of problem in social perception, Heider's discussion of the role of the surrounding causal structure in the interpretation of an action is highly pertinent and valuable (Heider, 1958).

A further aspect of the expectations regarding relationships between high- and low-status persons has to do with what Thibaut and Kelley (1959) refer to as behavior control. One person, A, exercises behavior control over another, B, if by varying his behavior A can make it desirable or necessary for B to make corresponding adjustments in his behavior. The person who knocks on your door, rings your telephone in the middle of the night, or walks toward you on the wrong side of the sidewalk—all these and many more require you to modify your behavior, to discontinue your present direction of action and to adopt a new one. When behavior control is exercised whimsically and arbitrarily, the person who has to make adjustments in his behavior is ordinarily annoyed and experiences a drop in his overall satisfaction. He has to interrupt ongoing activities before bringing them to completion, often with the result that he has incurred the costs of getting them under way without

having reached the payoff stages. The factors determining behavior control are quite different from those underlying general power (fate control in the terms proposed by Thibaut and Kelley). While the latter depends upon general abilities and having the means to provide other persons with rewards, behavior control requires only being able to gain access to a person and to present him with stimuli that arouse behavior strongly incompatible with whatever he might be doing. Thus, being able to insult or tease, being able to capture a person's attention through startling behaviors, these and similar actions constitute forms of arbitrary behavior control.

Because being subjected to behavior control often reduces one's satisfaction, most individuals try to avoid it. A powerful person or a person of high social status is especially resentful of being subjected to behavior control because this constitutes a threat to his high-status position. Through behavior control he can be forced to suffer low outcomes at the hands of persons of less general worth than he. Consequently persons with high fate control use it to discourage others from exercising behavior control over them. They establish the means (private offices, secluded yards, appointment secretaries) by which they can shut themselves off from unscheduled intrusions and interruptions. High-status persons are particularly resentful when persons of low status exercise behavior control over them. (See Cohen's results [1955] that frustration at the hands of a low-power person arouses more open aggression and hostility than when the source is a high-power one.) People of low status are expected to "know their place" and not to initiate interaction with persons of higher status. They are expected to be unobtrusive, not to speak unless spoken to.

Now consider the consequences for normal-handicapped interaction of these points regarding behavior control. Remember our assumption that the former regards the handicapped individual as his status inferior, but that the latter regards the two as status equals. The normal person will feel free to intrude upon and to exercise behavior control over the handicapped individual and will expect the latter not to resent it. The latter will not only resent it but will exercise counter-behavior control much more often than the normal person will feel warranted. An important further factor unique to the handicapped person must be added to this picture. If his disability is visible and dramatic, it affords a highly effective means of exercising behavior control over others. Sheer presentation of a mutilated part of the body requires others to make some sort of adjustments in their behaviors of the moment. These adjustments are espe-

cially costly. They are not as thoroughly practiced as are adjustments to more familiar interpersonal events, and the new behaviors induced have strong emotional components (e.g., fear, aggression) which render them highly incompatible with most other ongoing activities. Thus, our analysis suggests that the handicapped individual may have two factors working against his use of behavior control in a manner acceptable to normals: (a) he has an especially effective means of exercising such control, and (b) he does not share others' views as to the extent to which he should be passive and noninitiating in interactions.

Summary

We have suggested that the social norms pertaining to interaction with disabled persons are rather equivocal, particularly with respect to the manner and extent of helping them. This norm ambiguity has implications for inconsistency in normal persons' behavior toward the handicapped, for differences between them in the causal interpretations made of "help," and for differences in their views of how passive and deferential the handicapped person should be.

For initial sources of research data on these points, the investigator probably need not go far beyond his own students or trainees. Many of the persons entering graduate programs in occupational therapy, rehabilitation counseling, and the like, while vitally interested in working with the handicapped, appear initially to possess some of the same attitudes, concerns, and biases about the handicapped as does the population at large. These persons could, for example, serve as suitable subjects for an investigation of the hypothesis that the less clear is a person's conception of what is the appropriate helping relationship to maintain with handicapped individuals, the more often will he exhibit extreme attitudes and behavior toward them.

In concluding, it must again be emphasized that this and the other suggestions made in this paper are only hypotheses for research and are not conclusions drawn from extensive analysis of interpersonal relationships between disabled and normal individuals. It is important that studies be made of these relationships, and we have attempted to indicate some of the aspects that social psychologists would consider most important.

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Editorial Comment

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T HE reader will not, I am sure, expect in the concluding chapter of this volume a detailed summary or a coordinated set of conclusions. Any attempt at such summarization or coordination is fraught with difficulties.

A detailed summary of each of the points made in the work-group chapters would be highly redundant. Restatements of the experts in the subgroups would be both presumptuous and hazardous. The Editor can hardly claim competence in all of the subareas represented in this report. The mechanical aspects of the conference activity and its reporting make it appear neither feasible nor desirable to attempt smooth transition from chapter to chapter in the text, or to present an overall coordinated picture of the results in one final chapter. The reader is reminded that it was feasible for this conference to represent only some of the areas of specialization in psychology. Those represented were invited to summarize the activity of their group in the manner they felt would best present the substance and flavor of their discussions. Consequently, the style of writing chapters runs the gamut from one that is a nearly verbatim transcript of the discussions to another which really presents three separate papers derived from the work-group discussions. The attempt to provide for work-group autonomy during the conference and in presenting the results was designed to present to the reader new and stimulating research ideas for rehabilitation, in the context of the discussions of expert psychologists.

With no attempt, then, to summarize in detail or to coordinate the separate subareas of psychology represented at this conference, these concluding remarks will be limited to some common feelings and experiences that appear to emerge from all of the work-group discussions.

The participants in all of the psychology work groups found the area of rehabilitation problems a challenging assignment for their special areas of theoretical and research interest. They came to the research conference relatively naive about rehabilitation problems. Most participants left the

conference expressing the feeling that they were richer for the experi- ence of having interacted with their colleagues around the focus of re- habilitation problems.

Expert psychologists can become interested, in a very short time, in rehabilitation problems, and do see possible approaches to these problems from their own non-rehabilitation-oriented frames of reference for doing psychological research. The chapter reports in this volume make obvious the needs to interest more research psychologists in rehabilitation prob- lems, and to interest more rehabilitation researchers in the theory and research approaches of the special areas of psychology which may not on cursory inspection appear to have relevance or interest for rehabilitation problems. More conferences of this sort, which would allow further ex- ploration of the present interest areas, and the inclusion of others not represented, should contribute to meeting these apparent needs. Perhaps this volume may also stimulate interest in both groups of researchers.

There is recognition in the work-group reports of the fact that the problems of disability and the rehabilitation patient groups themselves offer uniquely appropriate opportunities for the testing and development of otherwise more general theoretical orientations and research frame- works. This feeling, which appears implicit in all of the work-group re- ports, is explicitly stated as follows in Chapter II:

". . . the theoretical-experimental psychologists discovered that reha- bilitation psychology not only provides facilities for testing existing hy- potheses but raises new theoretical problems and leads to new under- standings and conceptualizations. It was noted that subjects with disa- bilities often represent the occurrence in nature of conditions which can- not be satisfactorily reproduced in the laboratory; frequently, critical tests of theoretical propositions can be made with the use of disability groups that could not be made in any other way. It was further observed that the existence of physical disability often interferes with natural psychological processes in such a way as to make the character of these processes much more obvious and visible than it is in physically normal individuals."

As one might anticipate, the work-group reports reflect reluctance on the part of these research psychologists to prepare a cookbook for doing research in rehabilitation, or to compile a list of research problems to be done. While the planning committee hoped for research ideas and ap- proaches from the translation of research knowledge from the subspecial- ties of pyschology to the field of rehabilitation, it did not really want a set of rules for research or a list of problems to be attacked. Perhaps the

notion that more rigid (and more sterile) outcomes were desired (and had to be rejected) arose out of an anxiety created by both the rather unbelievable lack of structure for the conference work and reporting, and the relatively unfamiliar problem area the expert psychologists were asked to explore.

In any event, the work groups found it surprisingly possible to find rehabilitation research referents for many specific theoretical points in their own areas of interest. Learning, social psychology, cognitive theory, and the other special areas do have relevance for the study of rehabilitation problems, and this study, in turn, has promise of returns for theory development. The chapter reports of the work groups appear to be heavily loaded with stimulating research ideas for rehabilitation research and practice.

As an example, this Editor finds it most refreshing to consider employment of the handicapped in terms of employer reactions to pressures to hire the handicapped, as these reactions are viewed from the viewpoints of theories in social psychology. In Chapter VI this subject is explored in terms of Lewinian conflict theory and from the viewpoint of Festinger's cognitive-dissonance theory. Some stimulating ideas are advanced, and it is pointed out that, using such theory as a starting point, one can predict and test outcomes. It is hoped that some research psychologists, in and out of rehabilitation, will explore this research area. Perhaps then we might learn something substantial about employer attitudes and practices in the employment of the handicapped, and something about the effects of all of the effort in rehabilitation to sell employment of the handicapped as a group.

In Chapter II, the discussion of the study of body cognition, the concept of the *mine sphere,* the description of *unique mine-ness,* furnish just a few examples of research problem areas that promise new insights into the problems of and the adjustment to disability.

The emphasis on greater understanding of individuality and its implications for rehabilitation research, discussed in Chapter III, is a most welcome emphasis. What do we know about the suggestion that there may be work-satisfaction differences when career choices are based on different sets of limiting factors? Is it possible experimentally to change attitudes and values about the meaning of work in a person's life? We urgently need psychological research on questions such as these if we are to work effectively with the rehabilitation of handicapped individuals.

Our knowledge in rehabilitation of the relationship of reactions to the

onset of disability, to problems of the role of the rehabilitation counselor, and to the effects of the methods of rehabilitation is meager. The sug- gestion, in Chapter VI, of a possible typology of reactions to the onset of disability points to research approaches to needed knowledge in this area. The study of self-evaluation phenomena of handicapped individ- uals in terms of the concept of the individual's *comparison level* should produce important research results for rehabilitation.

The psychologists in the learning group, Chapter IV, were able to ex- amine rehabilitation problems in the framework of behavior theory. As an example, the reader should find this group's conceptualizations of ha- bilitation, dishabilitation, and rehabilitation learnings to be particularly helpful for generating research suggestions. This group raised some ex- tremely relevant, if embarrassing, questions about the effectiveness of our rehabilitation services in clinics and centers, in their discussion of rein- forcement principles. The following brief quotation is an example of one of the questions discussed and may suggest re-reading of the section by the workshop or center psychologist in rehabilitation: "I wonder what the potentialities are for the systematic introduction of reinforcers into the rehabilitation situation, especially extrinsic reinforcers? Could they be introduced, for example, in prosthetics training or any rehabilitation activity, in such a way that the reinforcers were contingent upon the type of behavior that was wanted?" Discussion of such problems and research activity around them illustrate very well the implications of psychological theory for practical service applications in rehabilitation.

In Chapter V, the personality psychologists have explored for us, in some detail, the place of personality theory and research in the study of disability and rehabilitation. It is obvious that the problems for which rehabilitation workers seek answers overlap considerably the concerns of the personality psychologists, working with the problems of persons not usually thought of as handicapped or disabled. The research problems of the two professional groups appear to be almost identical. Rehabilitation research psychologists should find the conceptualization of psychological stress, presented in Chapter V, to be very productive of testable research hypotheses relevant to the problems of rehabilitation.

It is hoped that this report will effectively assist in the cross-fertiliza- tion needed between psychologists and rehabilitation workers. The sub- areas of psychology do have contributions to make from their theory and research approaches. Psychologists who participated found the problems of rehabilitation both interesting and relevant to the testing out of their

conceptualizations. In the text of the report, some of the groups explicitly make the plea for more cross-fertilization, better communication, and greater attention to the implementation of more psychological research in rehabilitation through such devices as research fellowships and visiting professorships.

This Editor feels that the participating psychologists have produced a stimulating report that should have a positive impact on the developing research program in rehabilitation. Additional conferences of this kind, to allow unstructured exploration of additional areas of specialization in psychology, as they relate to rehabilitation, and to promote further exploration of the areas here reported, should be held on a regular basis.

Index

211

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